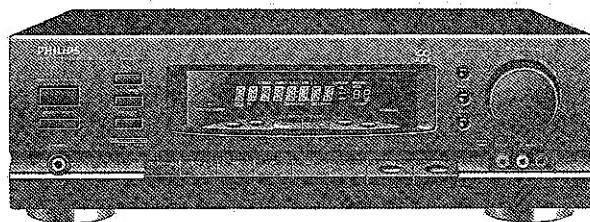


Service  
Service  
Service

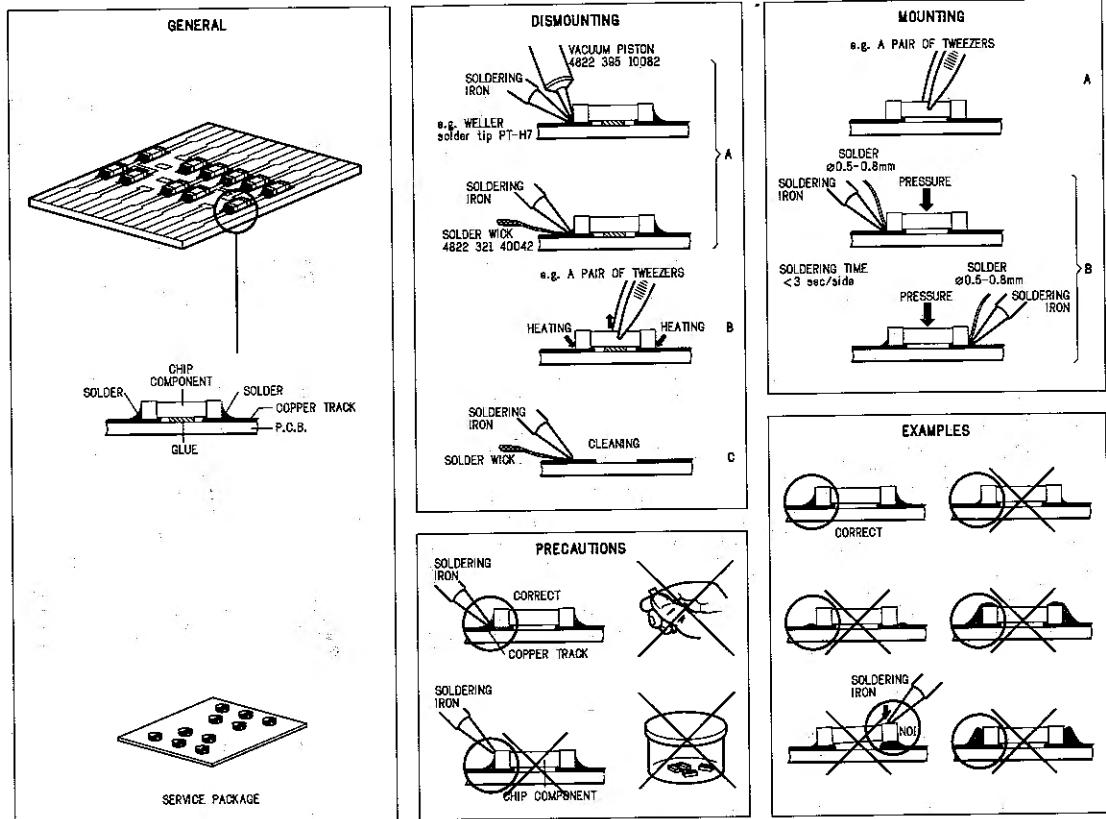


# Service Manual

CONTENT	PAGE
Safety	1
Controls - Front	2
- Remote Control	3
Installation	4
Block Diagram	5
Wiring Diagram	6
Specifications	6
Radio Alignment	7
Tuning Board - Circuit Diagram	7
- Layout Diagram	8
Front Board - Circuit Diagram	9
- Layout Diagram	10
Main Board - Circuit Diagram	11
- Layout Diagram	12
Power Supply Board - Circuit Board	13
- Layout Board	14
Service Test Program	15 - 16
Exploded View Diagram	17
Electrical Partslist	18 - 20



# HANDLING CHIP COMPONENTS



## GB WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

## F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité peut être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfile le bracelet servi d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

Anti-static table mat large 1200x650x1.25mm  
small 600x650x1.25mm

Anti-static wrist band

Connection box (1MOhm)

Extendible cable (to connect wrist band to conn. box)

Connecting cable (to connect table mat to conn. box)

Earth cable (to connect any product to mat or box)  
Complete kit ESD3 (combining all above products)

Wristband tester

## D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.

Sorgen Sie dafür, daß Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.

Halten Sie Bautelle und Hilfsmittel ebenfalls auf diesem Potential

4822 466 10953  
4822 466 10958  
4822 395 10223  
4822 320 11307  
4822 320 11305  
4822 320 11306  
4822 320 11308  
4822 310 10671  
4822 344 13999

## GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Safety components are marked by those symbol.

## S Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålning.

## DK Advarsel !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

## SF Varoitus !

Avauksa laitteessa ja suojaalukituksen ohittamessa olet alttiina näkymättömälle lasersäteilylle. Älä katso sääteeseen!

## ESD



## NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

## I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cautela alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

## GB WARNING

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

## F ATTENTION

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

## D WARNUNG

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originale Zustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Original-ersatzteile zu verwenden.

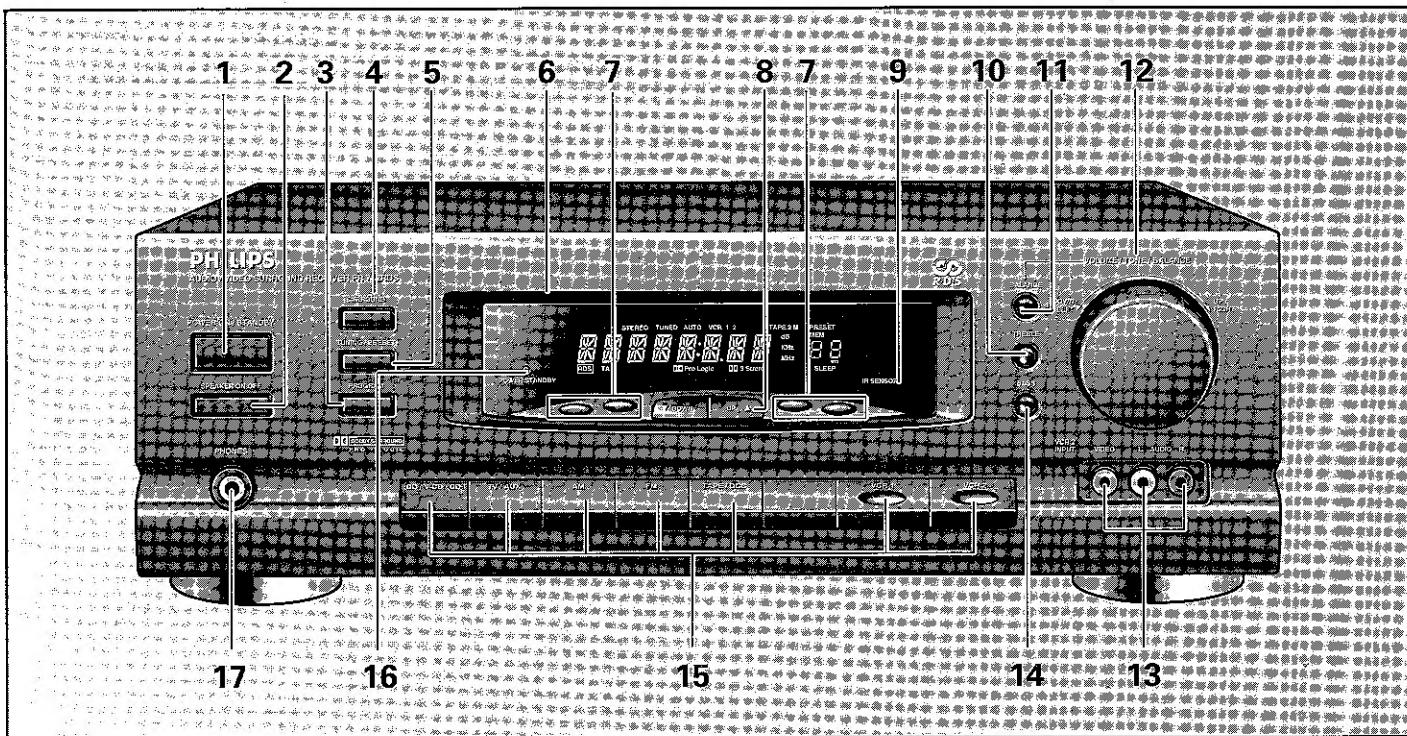
## NL WAARSCHUWING

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

## I AVVERTIMENTO

Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

## CONTROLS - FRONT



### FRONT

#### 1 POWER ON/STANDBY

For switching on to last mode and for switching off.

#### 2 SPEAKERS ON/OFF

For switching the speakers connected to the FRONT SPEAKERS terminals on and off.

#### 3 PROGRAM

For storing preset stations.

#### 4 SURROUND

For selecting the surround modes:

#### DOLBY PRO LOGIC, DOLBY 3 STEREO, OFF.

Dolby Surround manufactured under license from Dolby Laboratories Licensing Corporation. 'Dolby' and the double D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

#### 5 TUNING/PRESET

For selecting the frequency or channel mode.

#### 6 DISPLAY

Informs you about the functioning of the receiver.

#### 7 RDS MODE CONTROLS (for FM only)

**DISPLAY button:** For changing the display mode

**RDS button:** To turn the RDS mode ON or OFF

**AF button:** To tune automatically to the frequency with the strongest signal for optimum reception of a RDS station

**PTY button:** To select the RDS station broadcasting the desired programme type (PTY)

#### 8 UP/DOWN

- For adjusting the station frequency.
- For selecting the next or previous tuner preset.

#### 9 I(nfra) R(ed) SENSOR

Infrared remote control eye for receiving signals from the remote control.

#### 10 TREBLE

For adjusting the high tones (use together with the VOLUME/TONE/BALANCE control 12).

#### 11 BALANCE

For adjusting the balance of the volume between the left and right channels (use together with the VOLUME/TONE/BALANCE control 12).

#### 12 VOLUME/TONE/BALANCE

- VOLUME** – For adjusting the volume.
- TONE** – For adjusting the high tones and the bass tones (use together with the TREBLE 10 and BASS 14 controls).
- BALANCE** – For adjusting the balance of the volume between the left and right channels (use together with BALANCE button 11).

#### 13 VCR 2 AUDIO/VIDEO INPUT

Connections for an extra VCR or camcorder (VIDEO) or an extra audio source (AUDIO).

#### 14 BASS

For adjusting the bass tones (use together with the VOLUME/TONE/BALANCE control 12).

#### 15 SOURCE SELECTION KEYS

For selecting the required audio or video source.

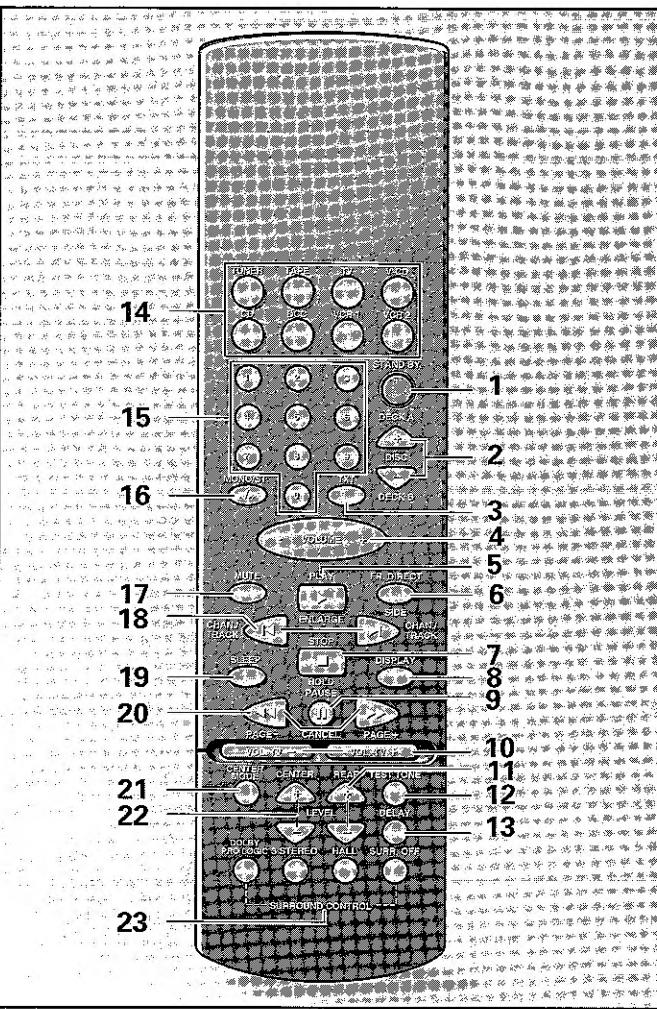
#### 16 POWER STANDBY LED

- Lights up when in stand by mode
- Flashes when MUTE is active

#### 17 PHONES

For connecting headphones.

## CONTROLS - REMOTE CONTROL



### AMPLIFIER

1 **STANDBY** – for switching to standby.  
 4 **VOLUME+VOLUME-** – for adjusting the volume  
 14 **Source selectors**  
 17 **MUTE** – for muting the volume.  
 19 **SLEEP** – for setting a time period after which the system will automatically be switched to standby  
**Surround processor**  
 11 **REAR LEVEL +/-** – for adjusting the rear level (only in Dolby Pro Logic mode)  
 12 **TEST TONE** – for checking the output level of the front, centre and rear speakers  
 13 **DELAY** – for adjusting the delay time of the rear channel (has no influence on the FR 732 for the delay time is fixed).  
 21 **CENTER MODE** – for selecting the desired centre mode when in Dolby Pro Logic or Dolby 3 Stereo mode  
 22 **CENTER LEVEL +/-** – for adjusting the centre level (only in normal mode or wide mode)  
**23 SURROUND CONTROL**  
 - **PRO LOGIC, 3 STEREO** – for selecting the different surround modes (the HALL button has no influence on the FR 732).  
 - **SURR(ound) OFF** – for switching the surround mode off

### TUNER

1 **STANDBY** – for switching to standby  
 6 **FR(frequency) DIRECT** – for direct tuning to the station frequency  
**8 DISPLAY:**  
 - Indicates the frequency, the signal level, the Programme Service name, the Program Type and the clock time in RDS mode.  
 - indicates the frequency, the signal level in FM non-RDS mode  
**PCS 87 087**

**15 0-9 digit keys** – for selecting preset stations and frequency direct mode

**16 MONO/ST** – for mono/stereo selection

**18 CHANNEL/TRACK** – next ► or previous ◀ preset station

**20 ◀◀ ▶▶** – for tuning up and down

### TAPE

**1 STANDBY** – for switching to standby

**2 DECK A/DECK B** – for selecting deck A or B

**5 PLAY ►** – for starting play

**6 SIDE** – for selecting tape side A or B

**7 STOP ■** – for stopping recording/play

**9 PAUSE II** – for interrupting recording/play

**18 CHANNEL/TRACK** – next ► or previous ◀ track

**20 ◀◀ ▶▶** – for winding the tape

### VCR 1 and VCR 2

**1 STANDBY** – for switching to standby

**5 PLAY ►** – for starting play

**7 STOP ■** – for stopping recording/play

**9 PAUSE II** – for interrupting recording/play

**15 0-9 digit keys** – for selecting stations

**18 CHANNEL/TRACK** – next ► or previous ◀ station

**20 ◀◀ ▶▶** – for winding the tape

### CD and V-CD/CD-i

**1 STANDBY** – for switching to standby

**2 DISC + -** (CD changer only) – for disc selection

**5 PLAY ►** – for starting play

**7 STOP ■** – for stopping recording/play/clearing a programme

**8 DISPLAY** – for displaying the elapsed playing time and the remaining playing time during playback of a (V-) CD.

**9 PAUSE II** – for interrupting recording/play

**15 0-9 digit keys** – for track selection

**18 CHANNEL/TRACK** – next ► or previous ◀ track

**20 ◀◀ ▶▶** – for searching up and down

### TV

**1 STANDBY** – for switching to standby

**3 TXT** – for switching teletext on and off

**5 PLAY ►** – enlarge picture

**7 STOP ■** – hold picture

**8 DISPLAY** – for selecting on screen display

**9 CANCEL** – cancel teletext

**10 VOLUME TV** – for adjusting the volume

**15 0-9 digit keys** – for selecting preset stations

**16 -/- - 1 or 2 digit entry**

**18 CHANNEL/TRACK** – next ► or previous ◀ channel

**20 PAGE + /PAGE -** – next or previous teletext page

### DCC

**1 STANDBY** – for switching to standby

**2 DECK A/DECK B** – for selecting deck A or B

**5 PLAY ►** – for starting play

**6 SIDE** – for selecting the tape travel direction

**7 STOP ■** – for stopping recording/play

**8 DISPLAY** – for displaying character information (e.g. title names etc.)

**9 PAUSE II** – for interrupting recording/play

**15 0-9 digit keys** – for track selection

**18 CHANNEL/TRACK** – next ► or previous ◀ track

**20 ◀◀ ▶▶** – for winding the tape

## INSTALLATION

You only have to install your system once.  
Please make the following connections (whenever applicable).

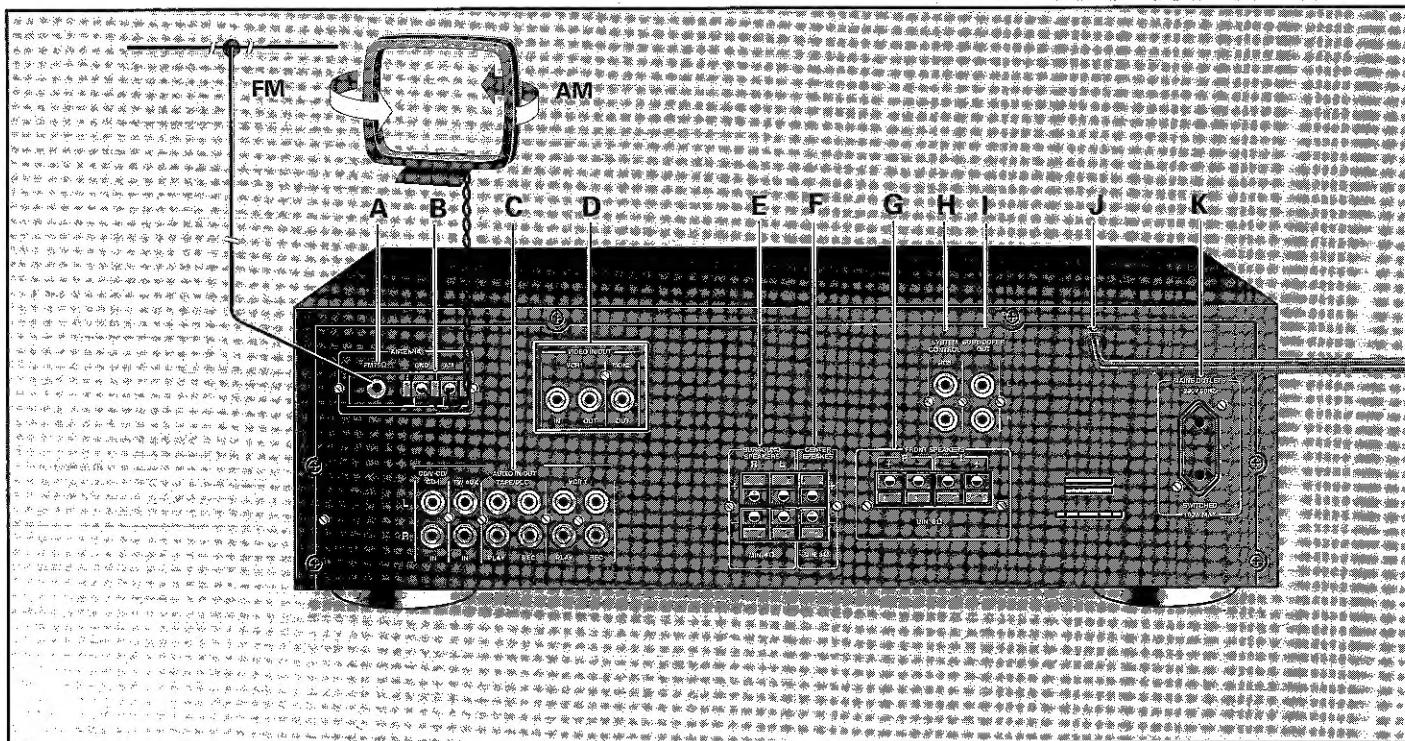
### NOTES!

#### - SWITCH OFF THE RECEIVER BEFORE MAKING ANY CONNECTIONS.

- Do not connect the set to the mains when making connections.
- Be sure to connect the white plugs to the L (left) and the red plugs to the R (right) sockets when making connections.

**Important note for connecting equipment that does not have PLAY/REC markings on the input and output sockets:**

FR732	Device to be connected e.g. cassette deck.
PLAY →	PLAY or OUT
REC →	REC or IN



## CONNECTIONS

### A FM (75 Ω)

The FM (75 Ω) socket is used for connection to the Community or Cable Antenna System or to a roof-mounted FM antenna with an impedance of 75 ohms. If none of these are available, you may use the wire supplied for nearby stations (reception could be poor).

### B GND/AM

For AM reception, connect the supplied wires to the GND and AM antenna terminals (one wire to GND and one wire to the AM terminal) and position the antenna for best reception.

**Note:** Do **not** place the AM loop antenna on the unit, as this unit employs a computing device which could cause interference.

### C AUDIO IN/OUT

- **CD/V-CD/CD-i IN** – input sockets for connecting a CD (Compact Disc) player or a V-CD/CD-i player.
  - Connect these sockets to the OUTPUT sockets of the (V) CD player.
- **TV/AUX IN** – input sockets for connecting the sound channel of a TV set or any other source you want to hear; an additional CD player, a cassette deck, a VCR or a turntable with ceramic cartridge etc.
  - Connect the PLAY sockets to the LINE OUTPUT sockets of the cassette deck.
- **TAPE/DCC PLAY/REC** – input and output sockets for connecting a cassette deck.
  - Connect the PLAY sockets to the LINE OUTPUT sockets of the cassette deck.

- Connect the REC sockets to the LINE INPUT sockets of the cassette deck.

- **VCR 1 PLAY/REC** – input sockets for connecting the sound channel of a video recorder and output sockets for extra sound recording equipment (e.g. a HiFi stereo video recorder, or cassette, or tape deck).

- Connect the PLAY sockets to the OUTPUT sockets of the VCR.
- Connect the REC sockets to the INPUT sockets of the VCR.

### D VIDEO IN/OUT

- **VCR 1 IN/OUT** – input and output sockets for connecting the video input and output of a video recorder

- **MONI/OUT** – output sockets for connecting to the video input of a video TV set.

### E SURROUND SPEAKERS

Terminals for connecting a pair of surround speakers, impedance of 8 Ω each, to obtain a surround sound effect

**NOTE:** Always connect **two** speakers to these terminals.

## F CENTRE SPEAKER

Terminals for connecting a centre speaker.

## G FRONT SPEAKERS A/B

Terminals for connecting two pairs of speakers, impedance 6-16 ohms (L = left, R = right).

- One of the wires of the loudspeaker cables is marked with a colour or rib. Connect the marked wire to the red terminal, the non-marked wire to the black one.

## H SYSTEM CONTROL

**RC-5** (coloured orange) – remote-control input/output socket for connection to the corresponding RC-5 socket of a CD (Compact Disc) player or a remote control receiver etc..

Connect the RC-5 socket to the RC-5 socket of the external equipment that uses the RC-5 remote control system. This socket has been added to maintain compatibility with other Philips Audio equipment.

## POWER

### I SUBWOOFER OUT

For use with an externally powered subwoofer (not supplied). For details, please refer to the subwoofer's owners manual.

### J MAINS LEAD

For connecting the set to the mains.

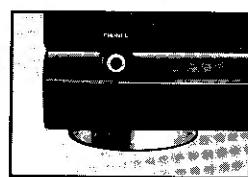
### K MAINS OUTLETS

Switched mains output for connecting mains plugs from various units such as cassette deck, CD player, etc. (maximum capacity is 100 W).

Power supplied through this outlet is turned on and off by the POWER button of the receiver and STANDBY button on the remote control.

## CONNECTING HEADPHONES

- Connect headphones with a 6,3 mm plug to the PHONES socket.
- Inserting the plug will not disconnect the loudspeakers.



## SPEAKER POSITIONING

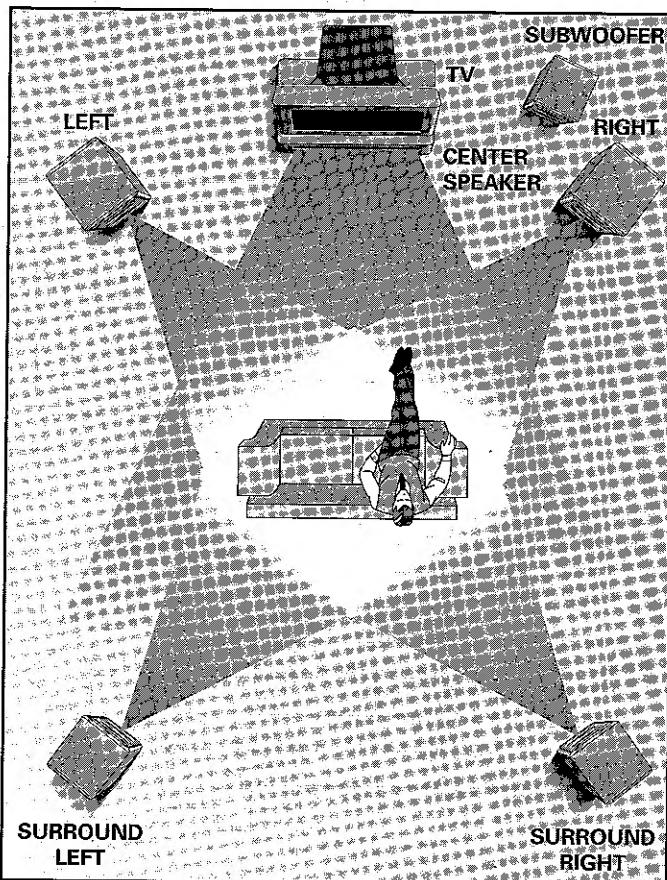
To get the best surround sound effect in your home, place the speakers as shown below.

The left and right speakers should be about 1 m. (40") from the TV set.

The centre speaker should be above or below the TV set.

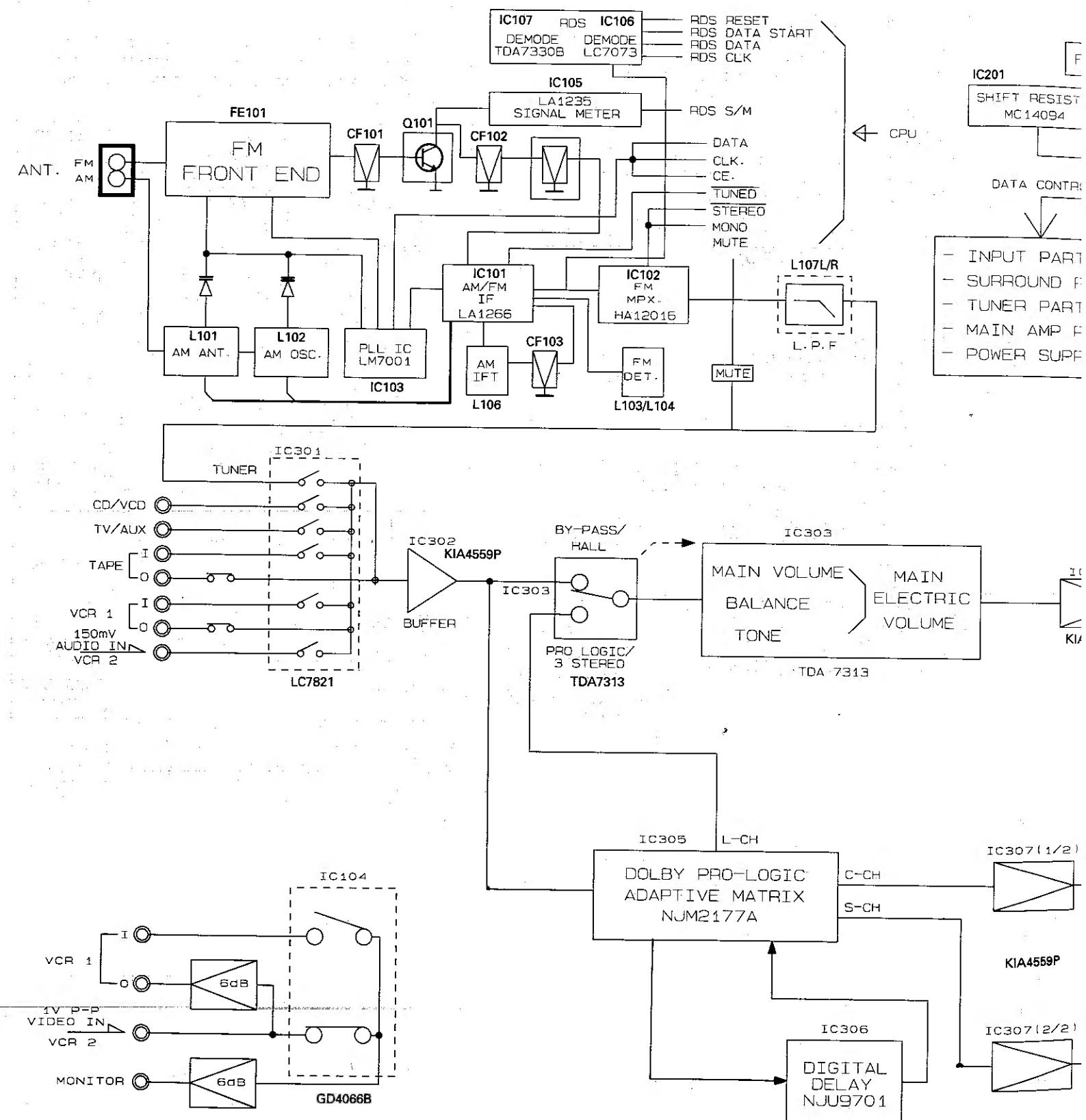
The rear speakers should be placed at normal listening ear level.

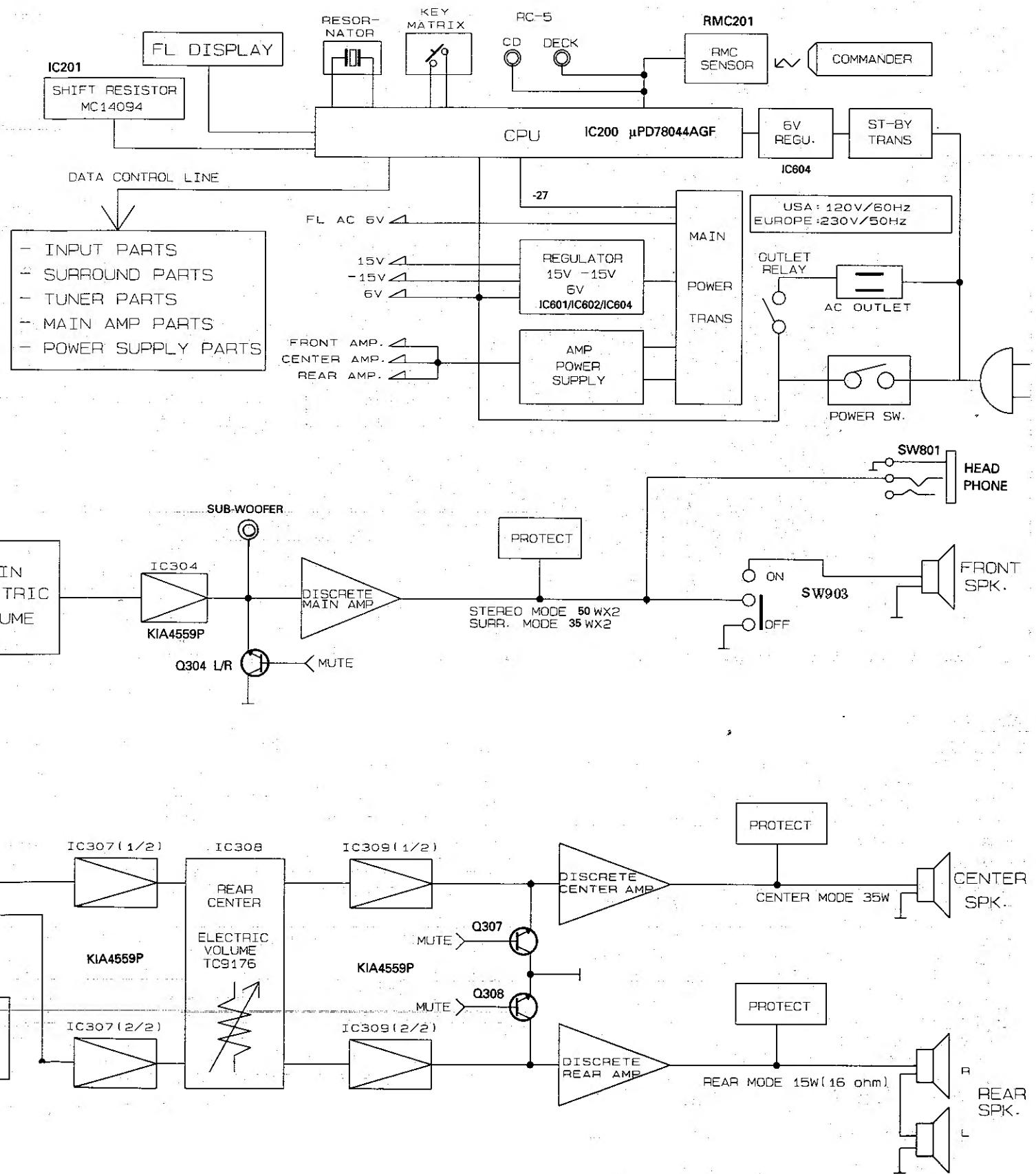
**Note:** to avoid interference with the TV picture, use only magnetically shielded speaker systems.



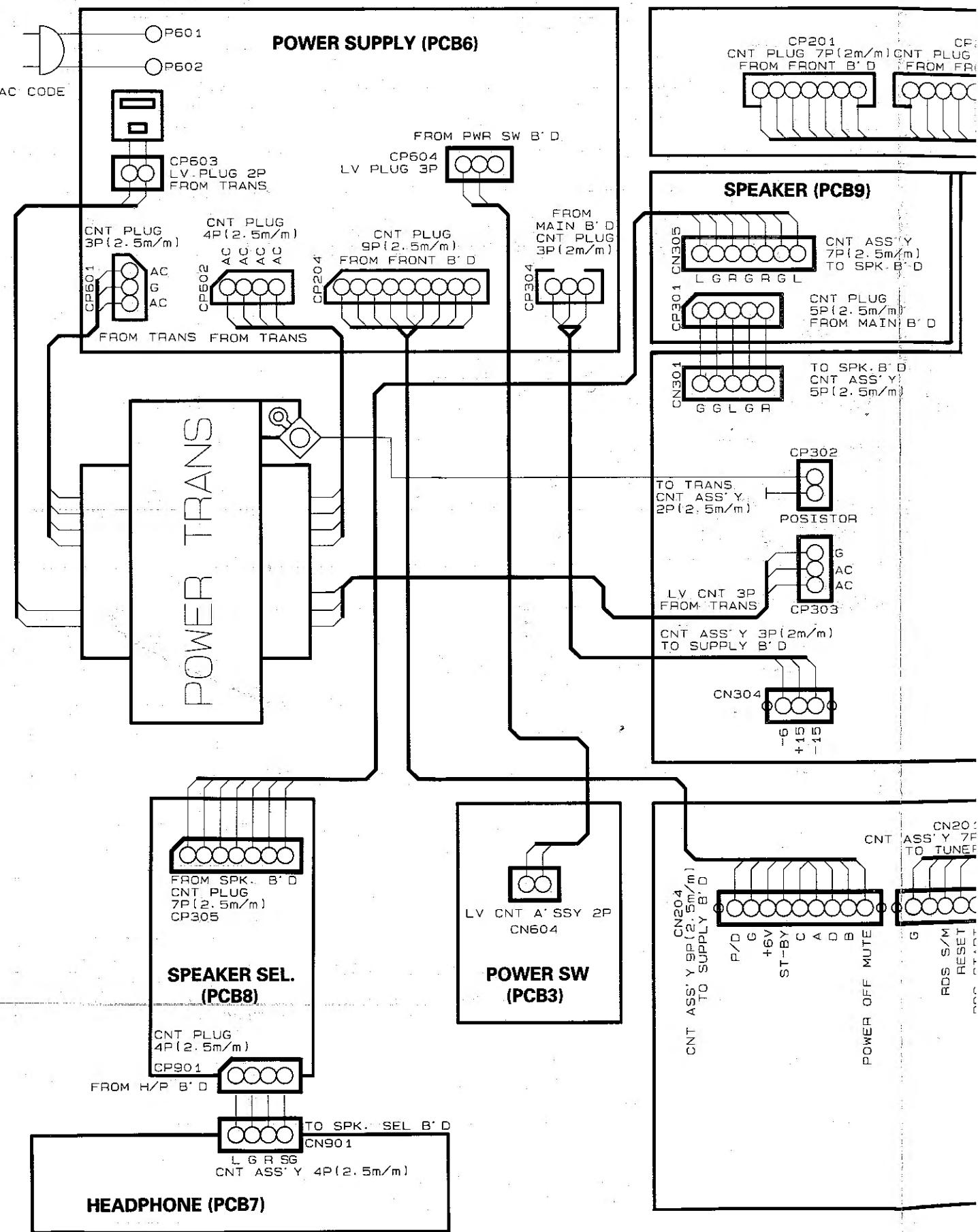
After making all necessary connections (some may not be applicable for your system set-up), your system is ready for use. In the next chapter we will describe how to operate your FR 732 receiver.

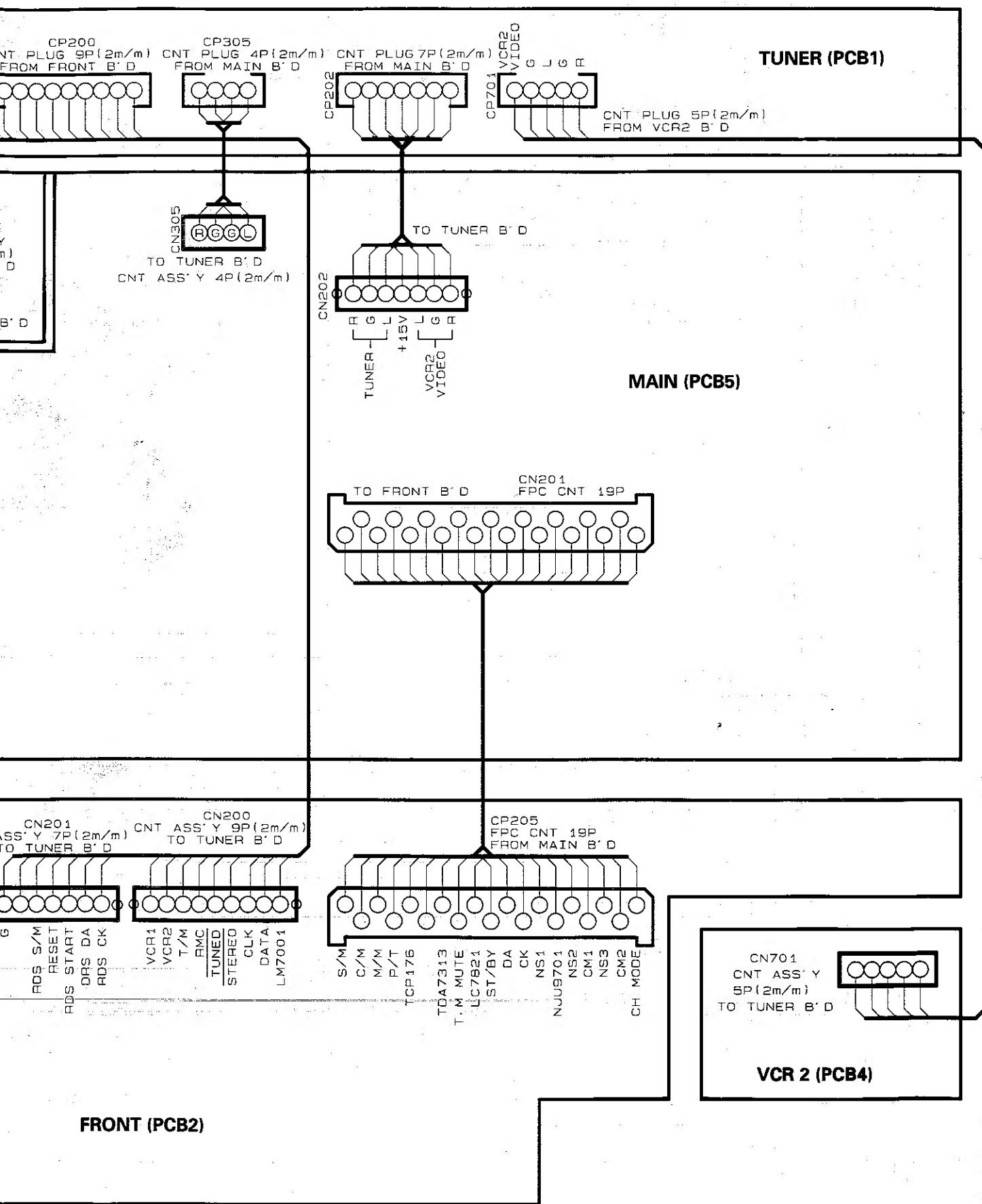
## BLOCK DIAGRAM





## WIRING DIAGRAM





## SPECIFICATIONS

### GENERAL

Main voltage	:	230V
Main frequency	:	50Hz
Battery (remote control)	:	3V (R03G x 6)
Power Consumption	:	110W
Dimension (W x H x D)	:	435 x 125 x 350 mm
Weight	:	8.6 kg

### AMPLIFIER

RMS Output power	Main	:	2 x 50 W
	Center	:	35 W
	Rear	:	2 x 15W
Speaker impedance	Main	:	2 x 8 Ohm
	Center	:	8 Ohm
	Rear	:	2 x 16 Ohm
Frequency response	Main	:	20 Hz - 40 KHz
	Center (PRO-LOGIC)	:	50 Hz - 15 KHz
	Rear (PRO-LOGIC)	:	100 HZ - 6 KHz
Tone control	Bass at 100Hz	:	12 dB
	Treble at 10KHz	:	12 dB
Channel seperation	1KHz	:	35 dB
CD/TAPE sensitvity		:	200mV

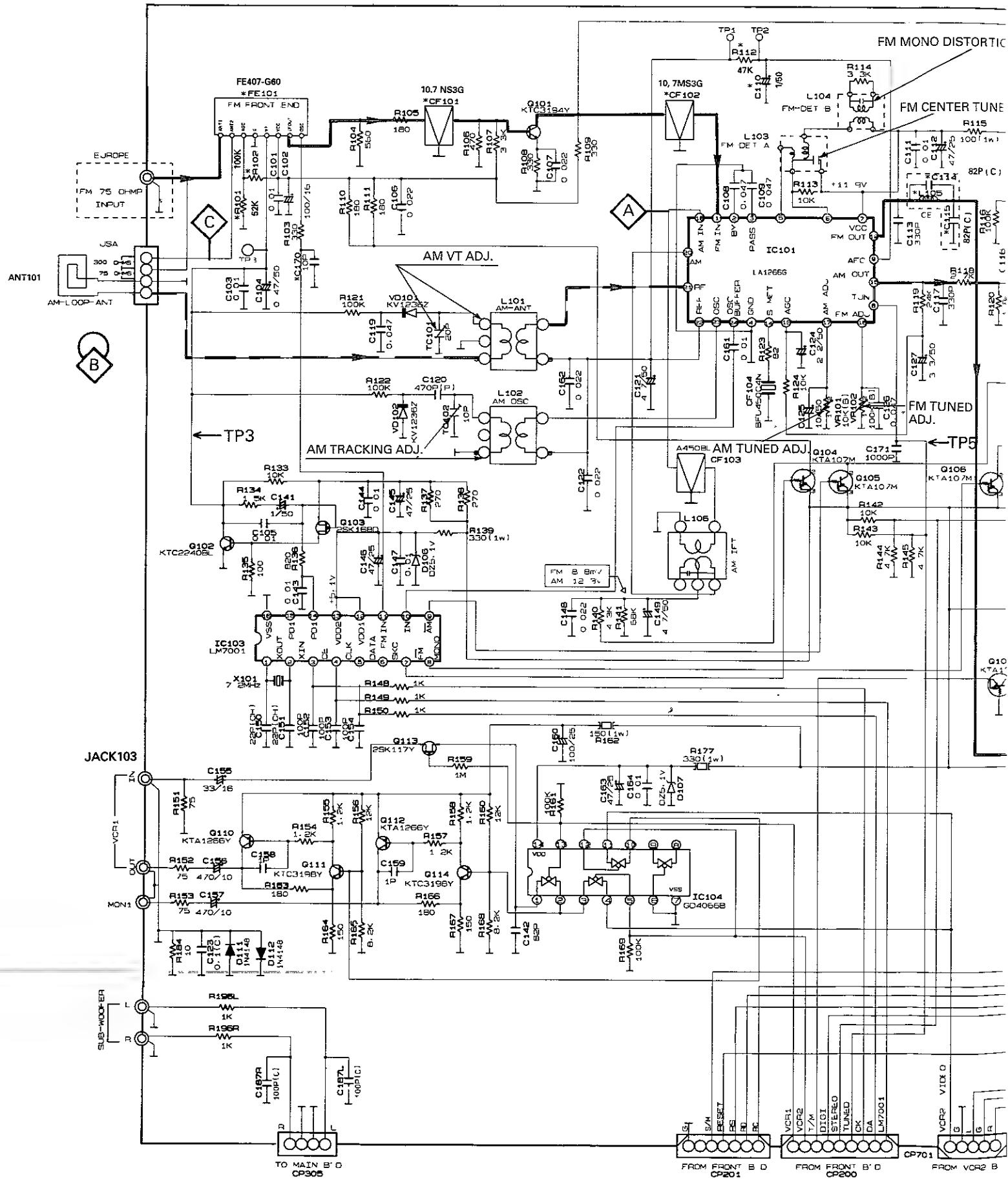
### TUNER - FM section

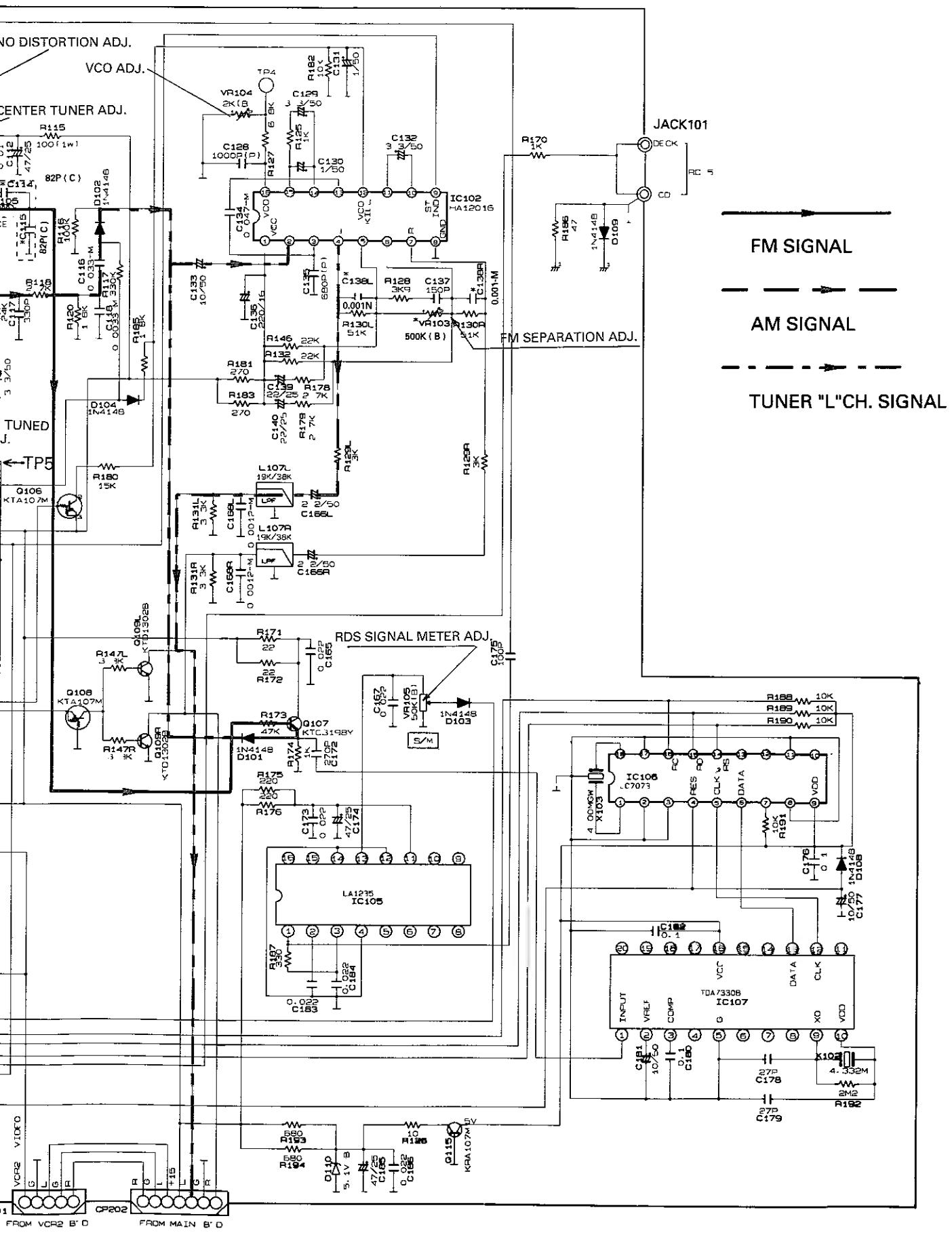
Tuning range	:	87.5 -108MHz	
IF frequency	:	10.7MHz	
Sensitivity	:	< 20 dBf at 26 dB S/N	
Selectivity	:	> 40 dB at 600 KHz B.W.	
IF rejection	:	> 70 dB	
Image rejection	:	> 70 dB	
Auto search stop sensitvity		> 34 dBf	
Stereo seperation	1 KHz	:	> 28 dB

### TUNER - AM section

Tuning range	:	522 - 1611KHz
IF frequency	:	450 KHz
Sensitivity	:	< 1000 $\mu$ V/m at 20dB S/N
Selectivity	:	> 20 dB
IF rejection	:	> 30 dB
Image rejection	:	> 28 dB
Auto search stop sensitvity		< 1585 $\mu$ V/m

## **TUNING BOARD - CIRCUIT DIAGRAM**





## RADIO ALIGNMENT

<b>AM IF</b>							
AM	450KHz		A	999KHz	L106	TAPE OUT	max.
<b>AM RF</b>							
MW (AM) * TUNING VOLTAGE	522KHz			522KHz	L102	TP3	DC voltage 1.0 - 1.2V
	1611KHz			1611KHz	TC102		DC voltage 8.5 - 9.0V
MW (AM)* RF SENSITIVITY	603KHz			603KHz	L101	TAPE OUT	max.
	1404KHz			1404KHz	TC101		
MW (AM) AUTO TUNING SENSITIVITY	999KHz		B	999KHz	VR101	TAPE OUT	AM SSG Output level of 800 $\mu$ V/m
<b>FM IF</b>							
FM #	98.0MHz			98.0MHz	L103	TP1/TP2 (R112)	Zero voltage
					L104	TAPE OUT	Min. distortion
<b>FM RF</b>							
FM # AUTO TUNING SENSITIVITY	98.0MHz		B	98.0MHz	VR102	TAPE OUT	FM SSG Output level of 7 $\mu$ V/m
<b>FM MPX</b>							
VCO	98MHz Pilot off		C	98MHz	VR804	TP4	Frequency 76 $\pm$ 0.2KHz
SEPERATION	98MHz (L-channel)		C	98MHz	VR103	TAPE OUT R-ch	Seperation Betten than 28dB
	98MHz (R-channel)			98MHz		TAPE OUT L-ch	

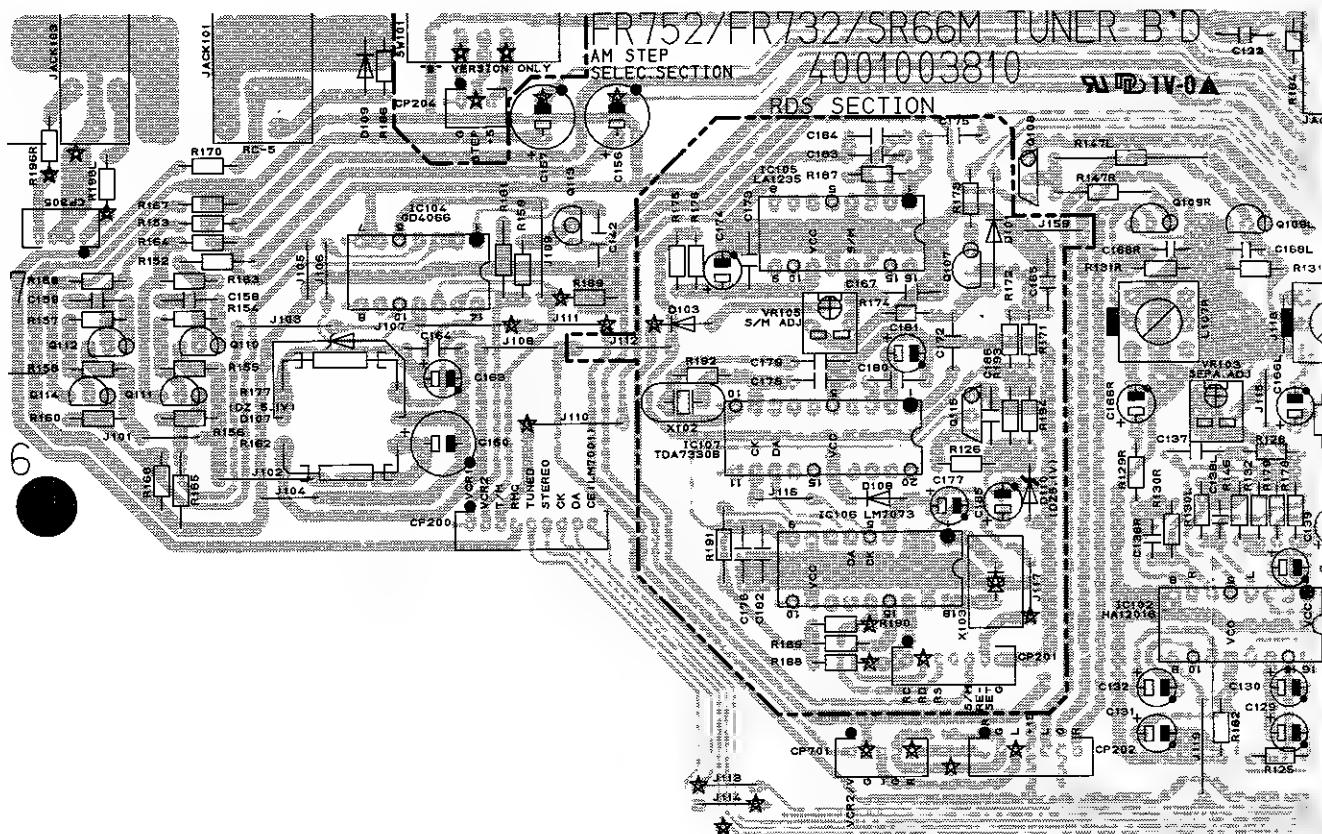
\* Mod 1KHz 30%

# 75KHz dev

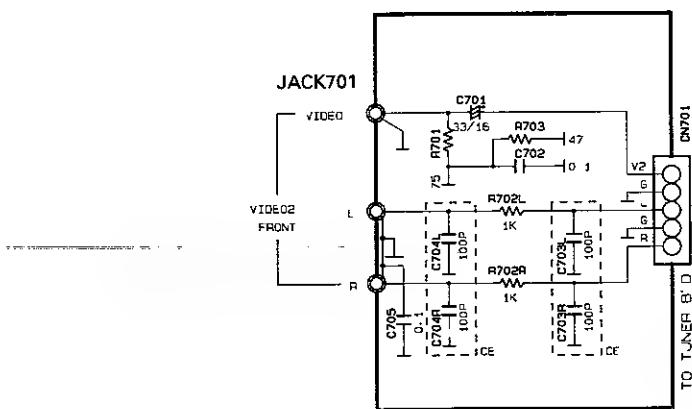
"Bei notwendigem Abgleich ist das Gerät auf die gesetzlich vorgeschriebenen Eckfrequenzen abzuleichen".

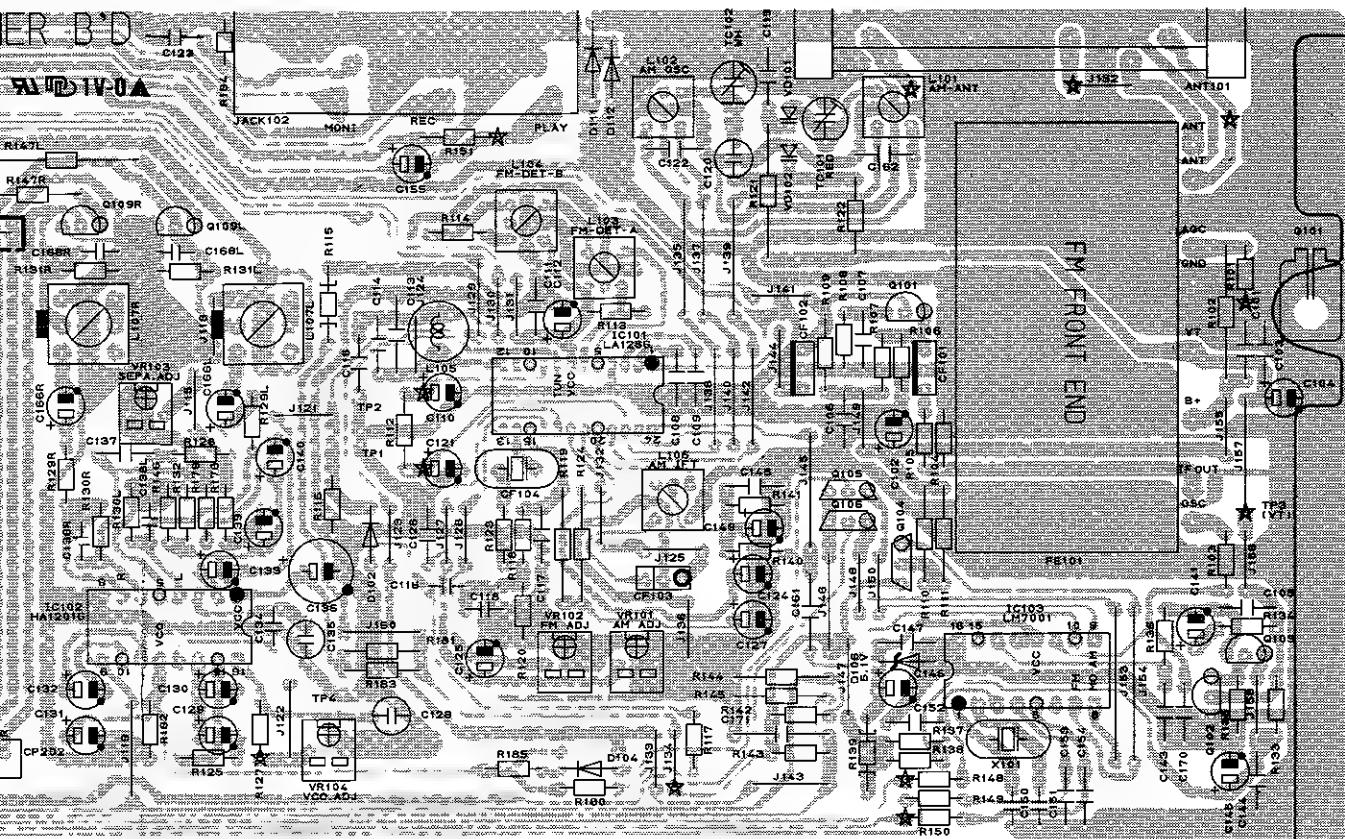
Repeat

## **TUNING BOARD - LAYOUT DIAGRAM**

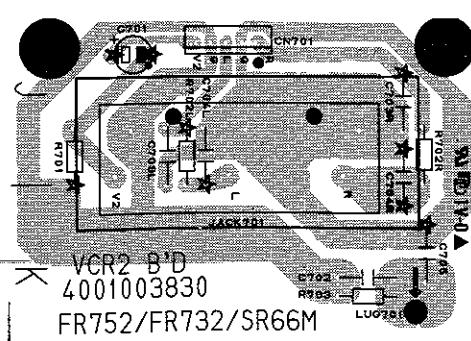


## **VCR2 BOARD - CIRCUIT DIAGRAM**

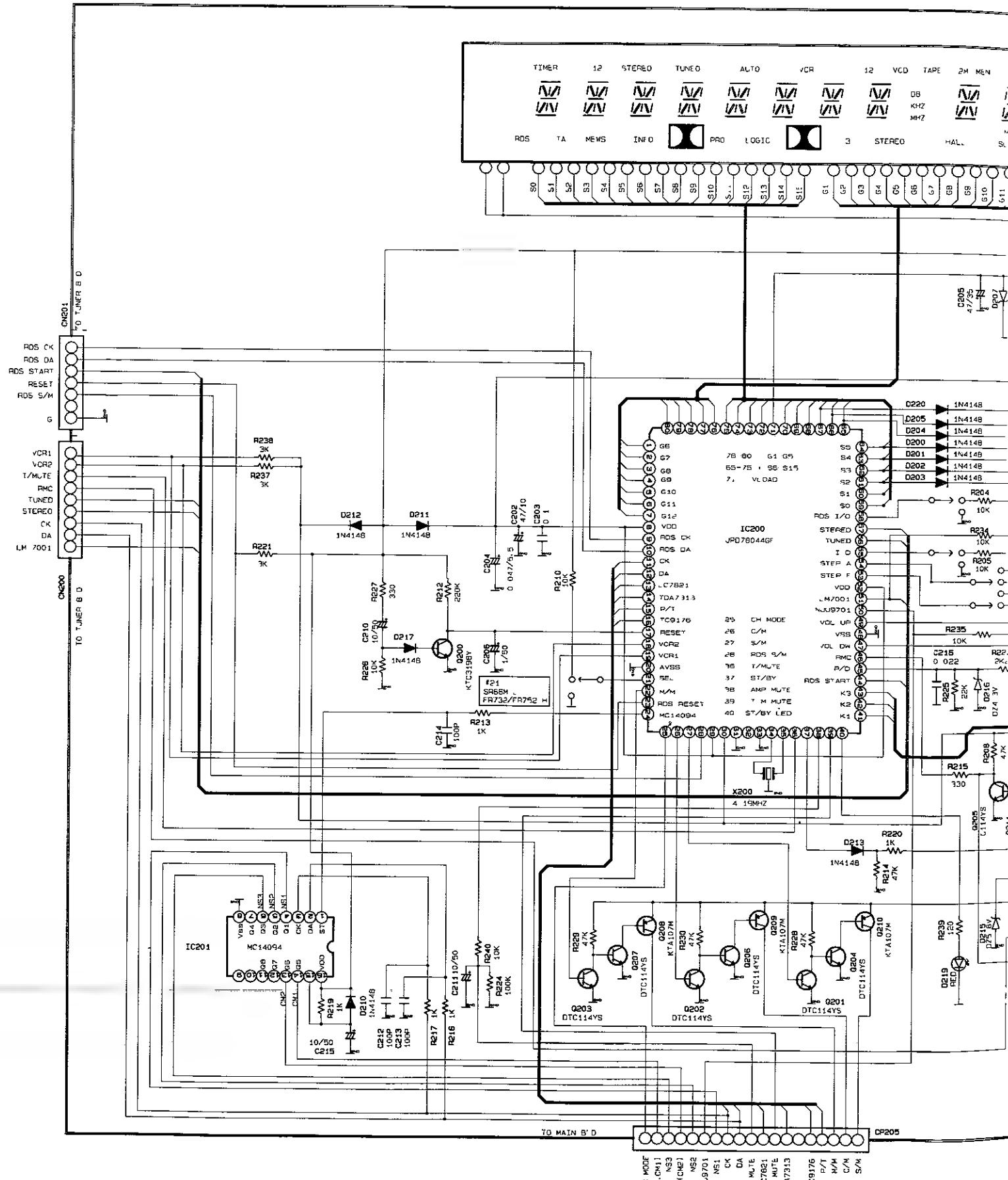


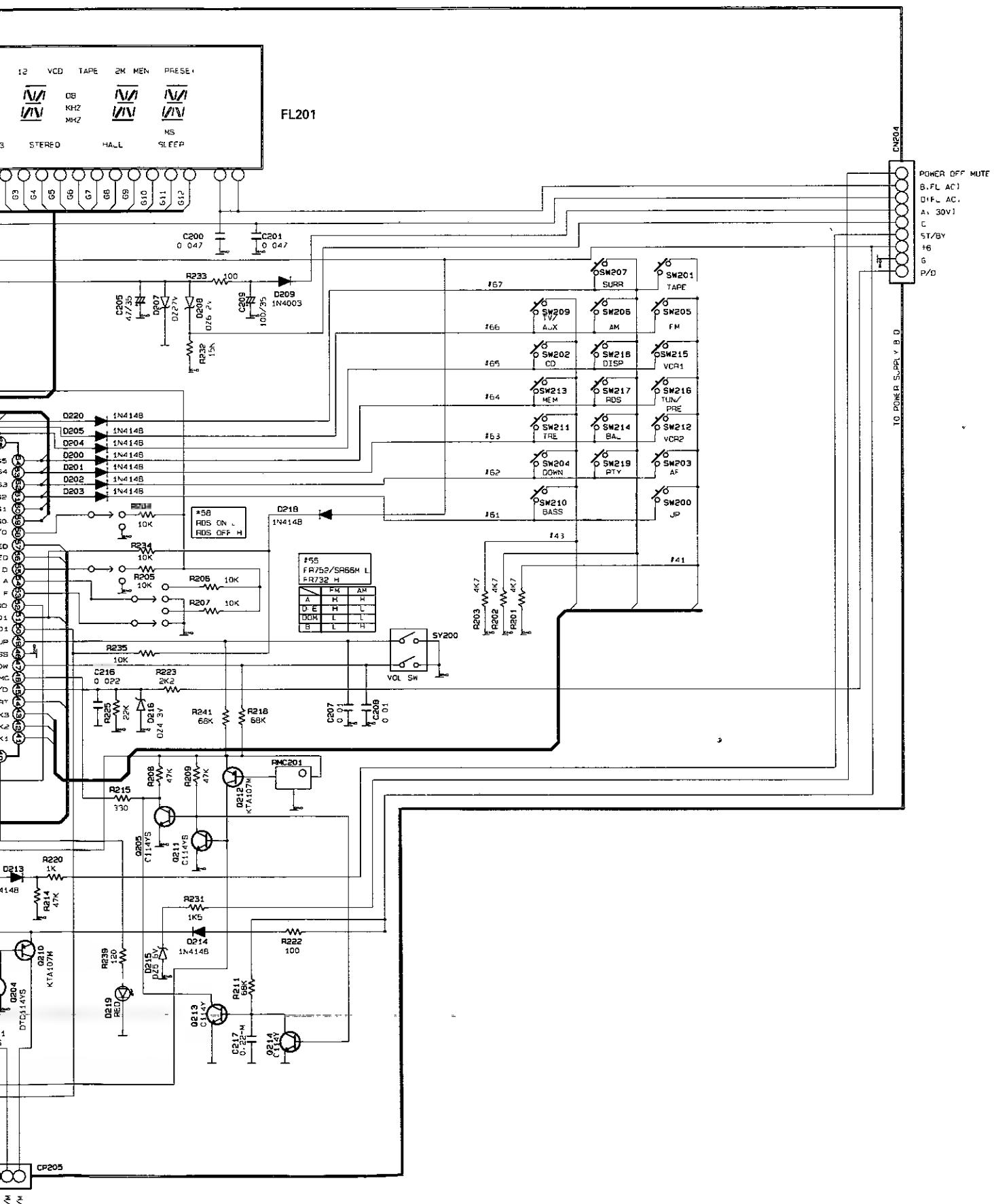


## VCR2 BOARD - LAYOUT DIAGRAM

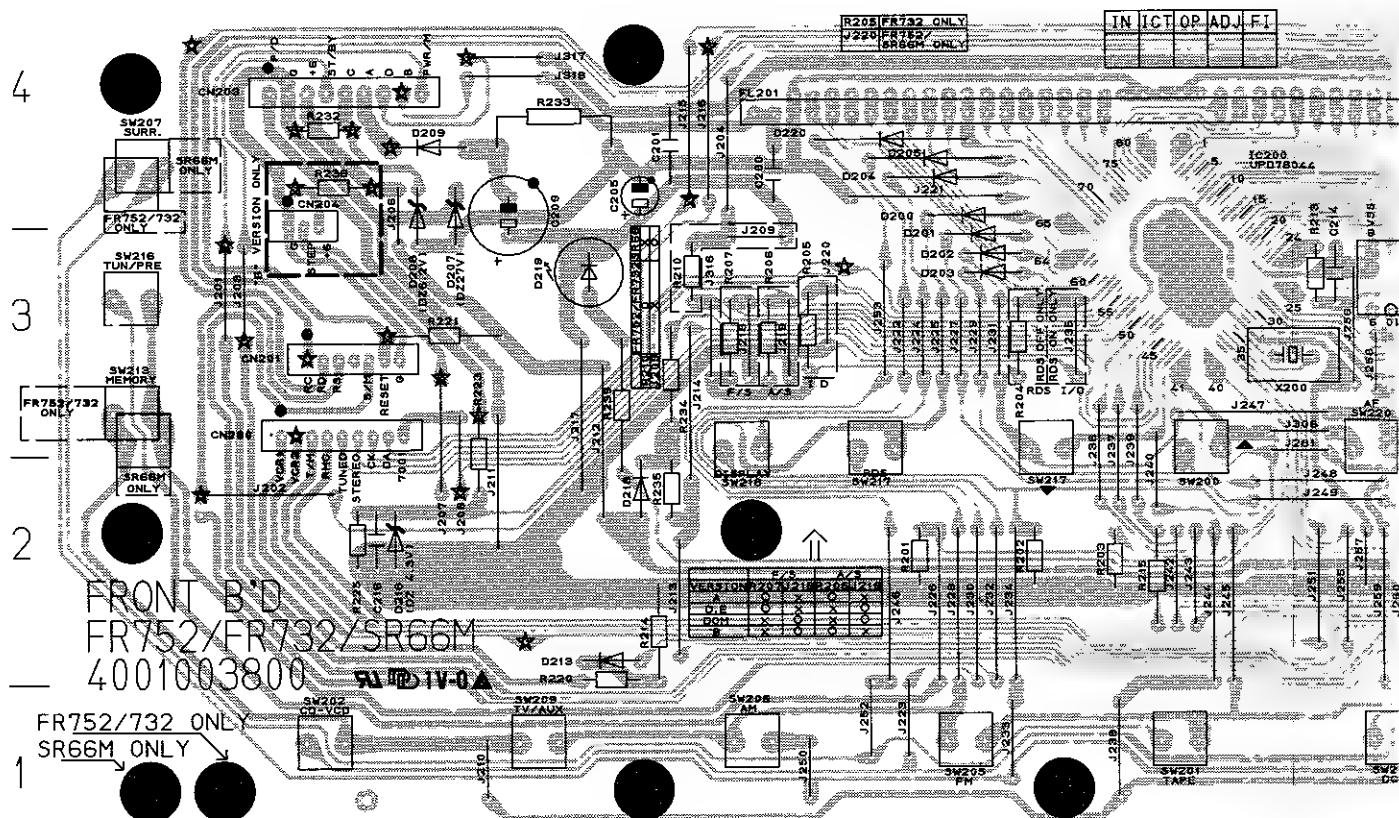


## FRONT BOARD - CIRCUIT DIAGRAM

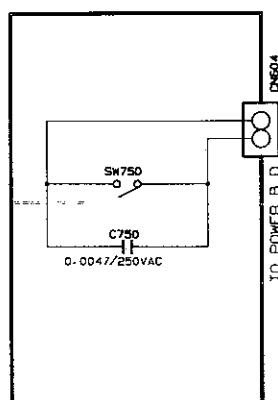


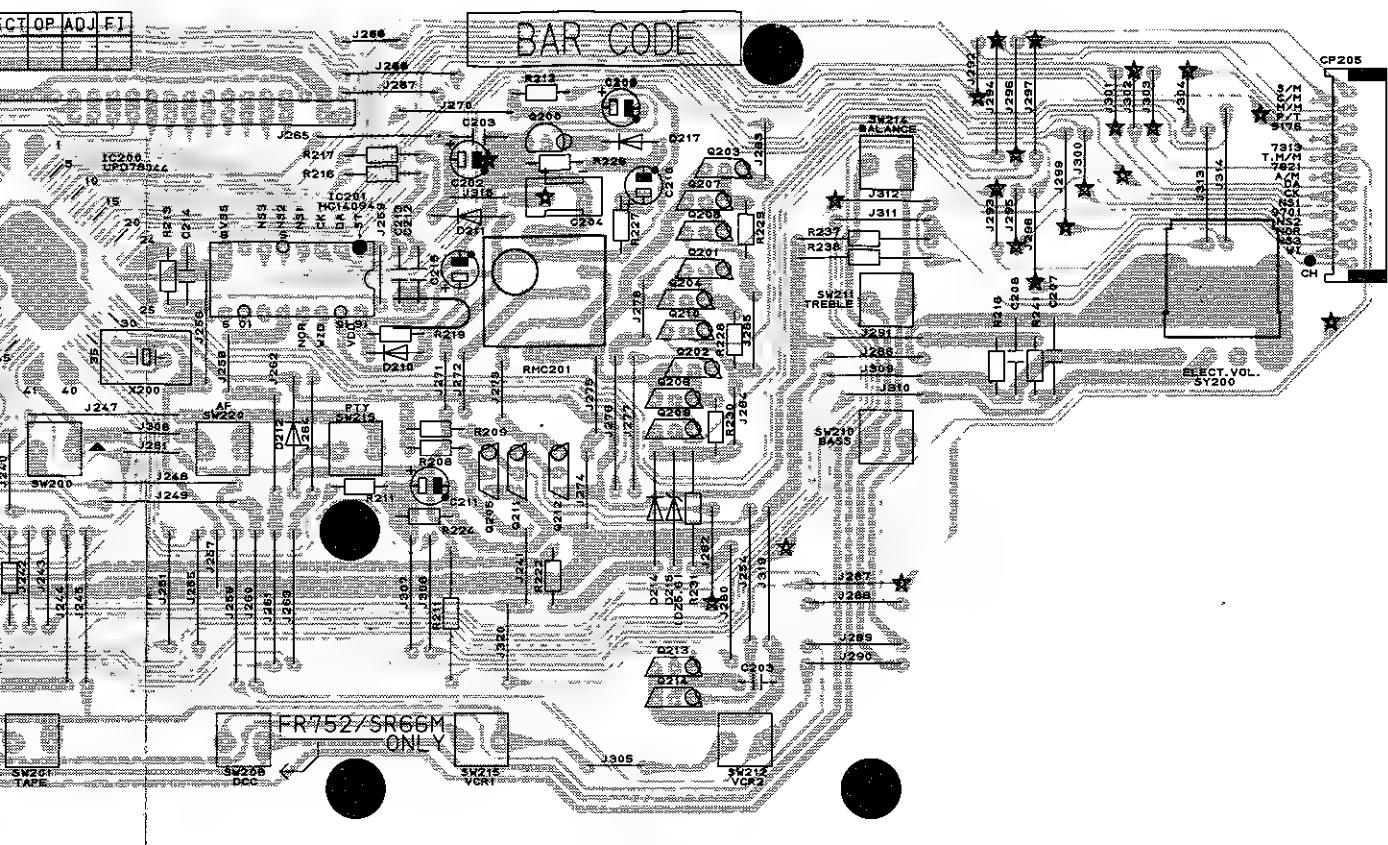


## FRONT BOARD - LAYOUT DIAGRAM

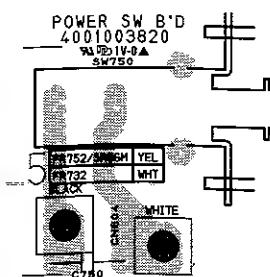


## POWER SWITCH BOARD - CIRCUIT DIAGRAM

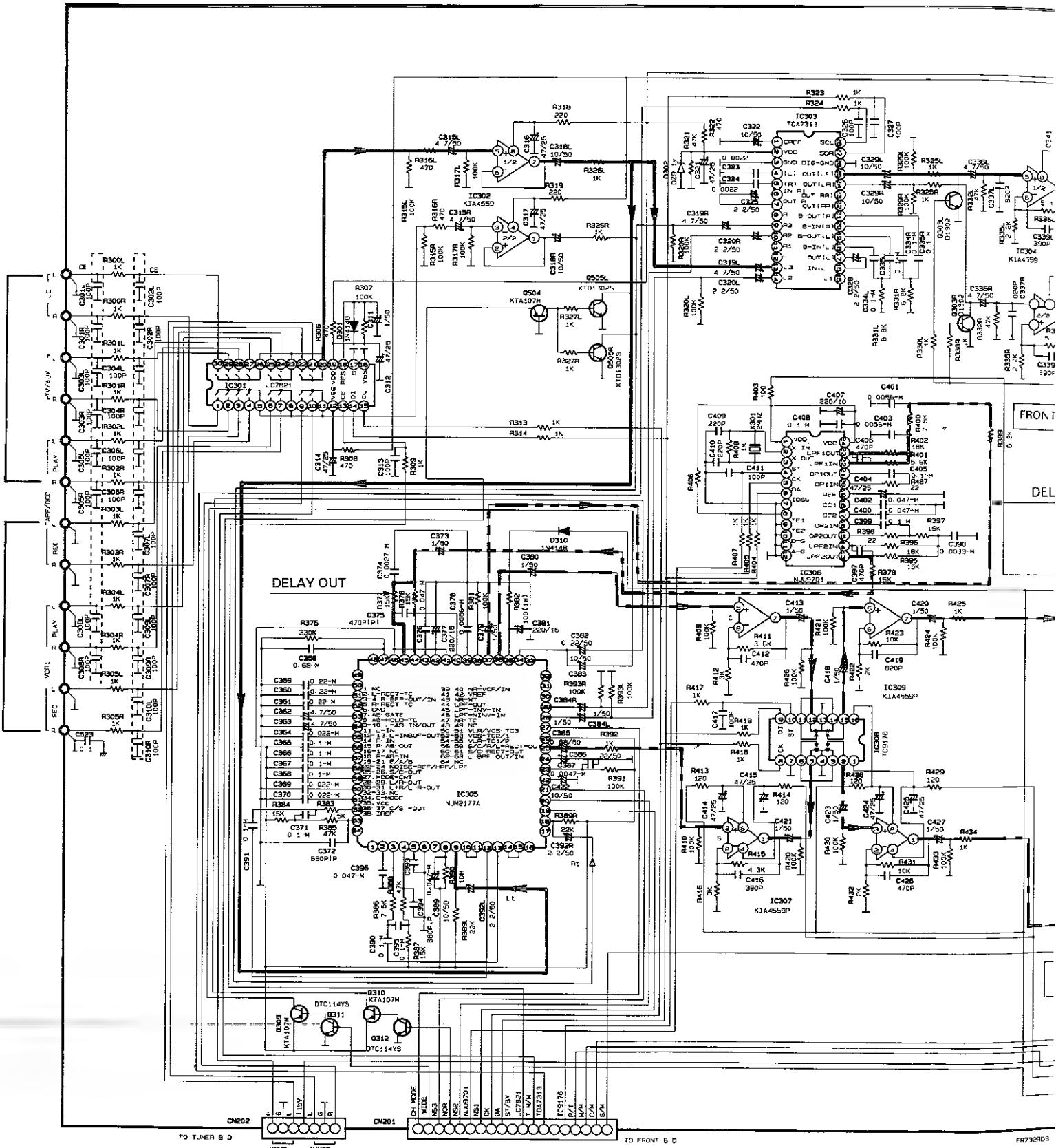


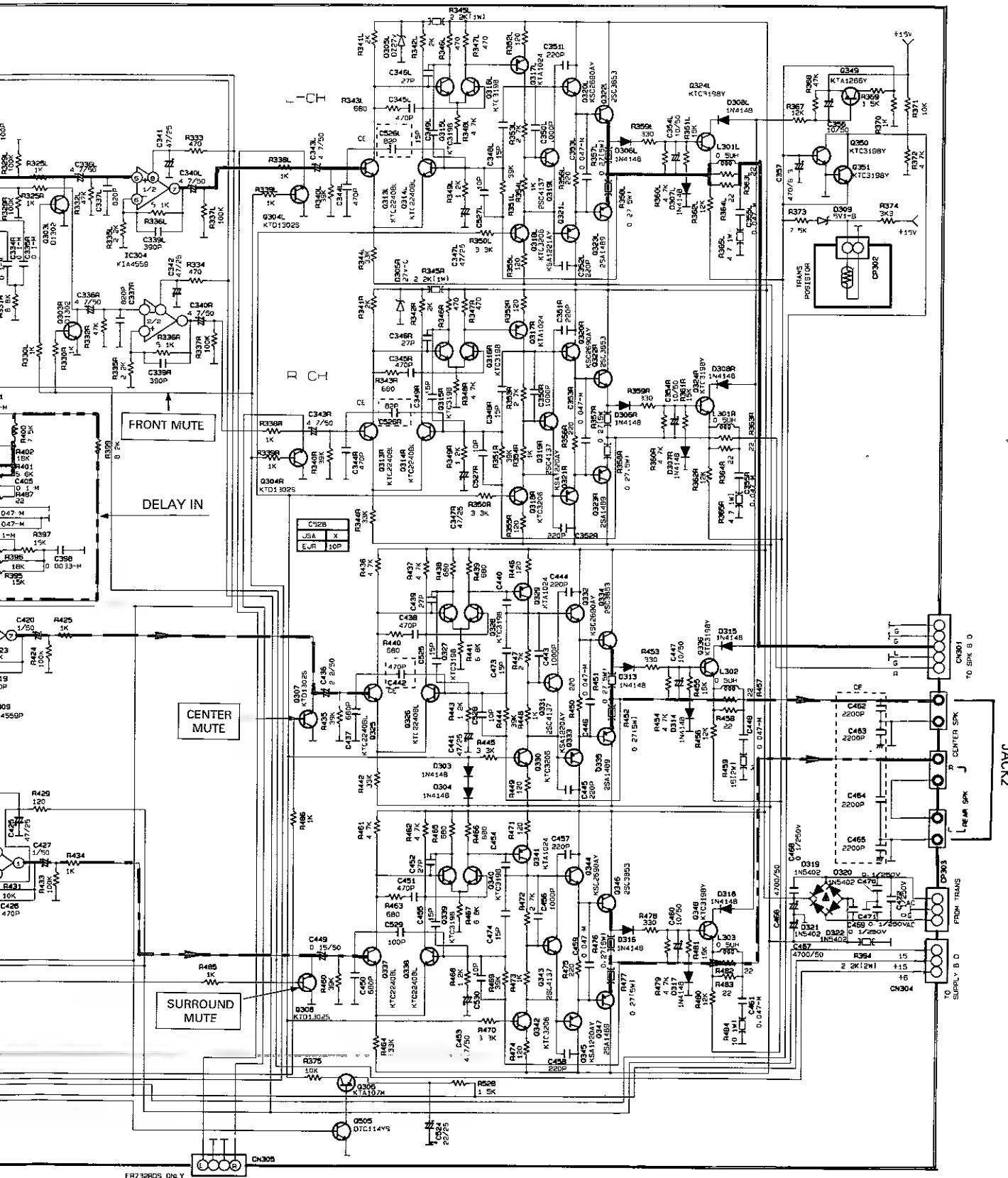


## POWER SWITCH BOARD - LAYOUT DIAGRAM



## MAIN BOARD - CIRCUIT DIAGRAM



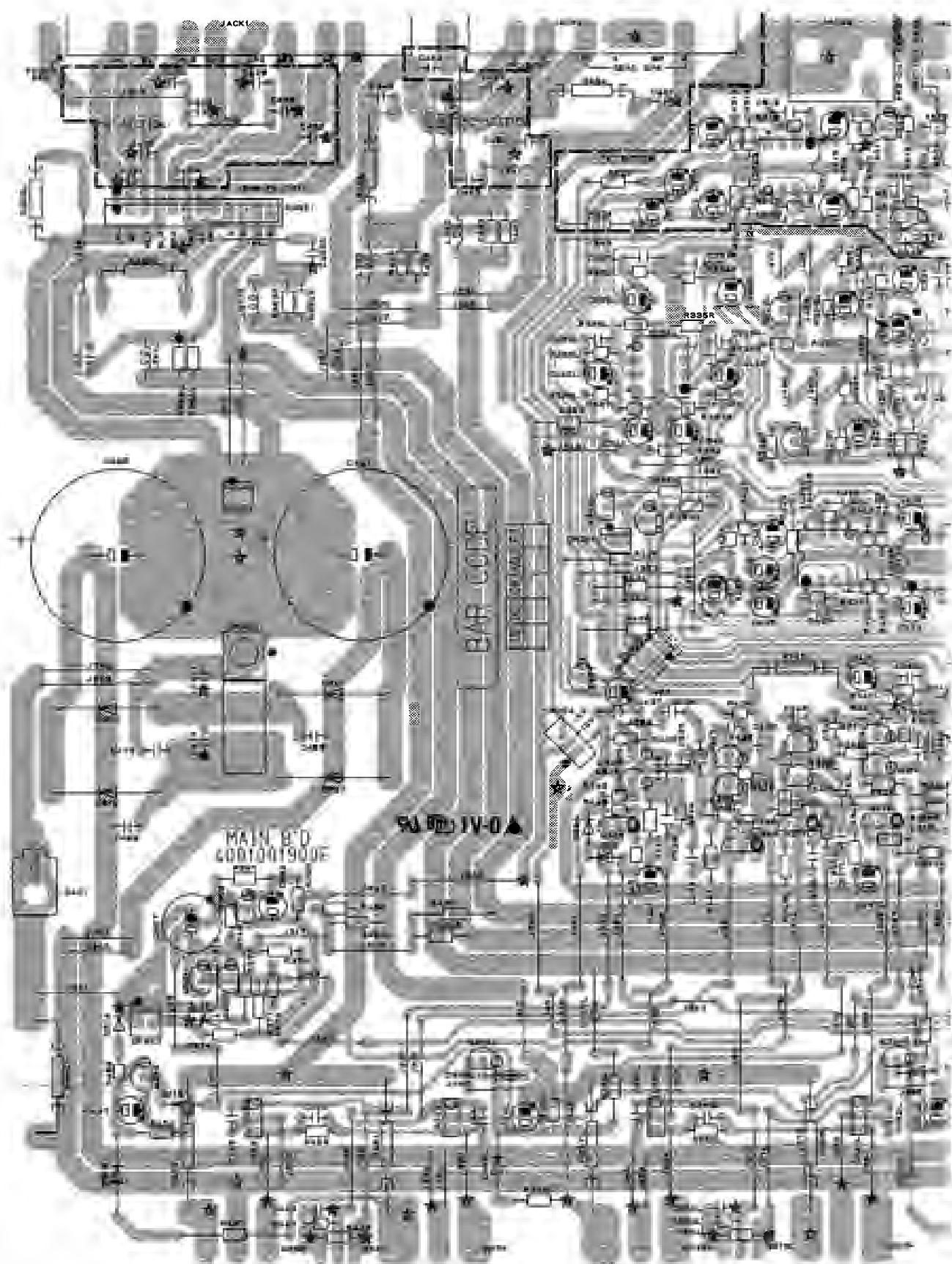


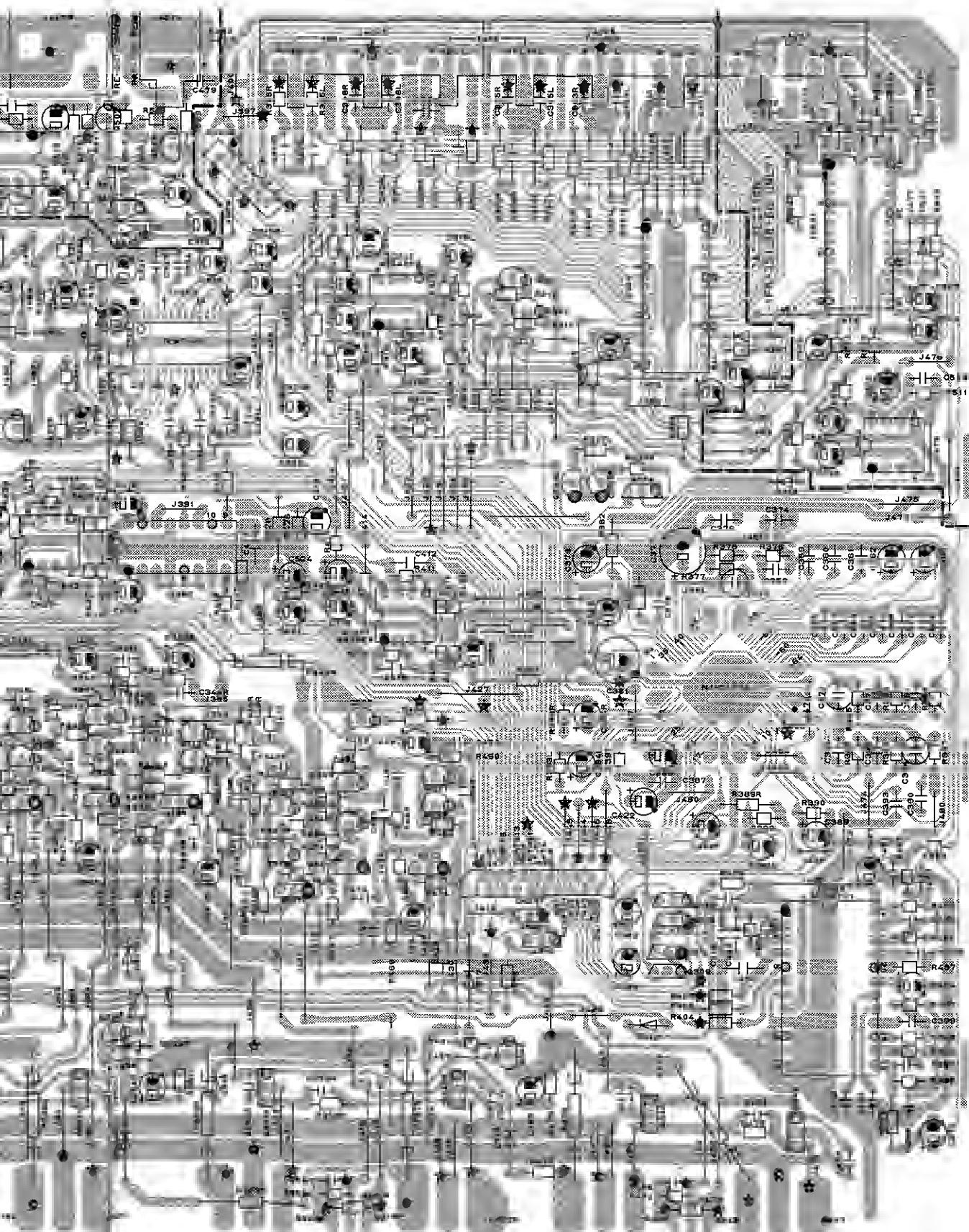
FRONT "L"CH. SIGNAL

— — — — — CENTER SIGNAL

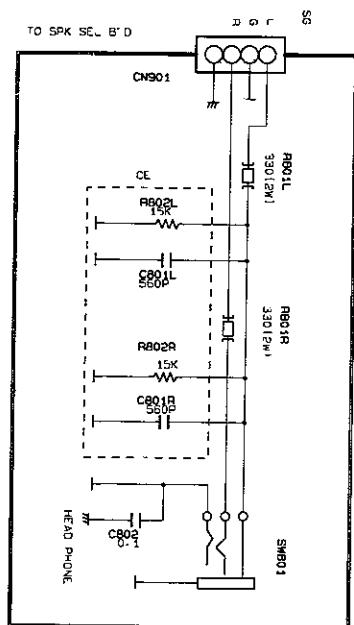
— — — — — SURROUND SIGNAL

## MAIN BOARD - LAYOUT DIAGRAM

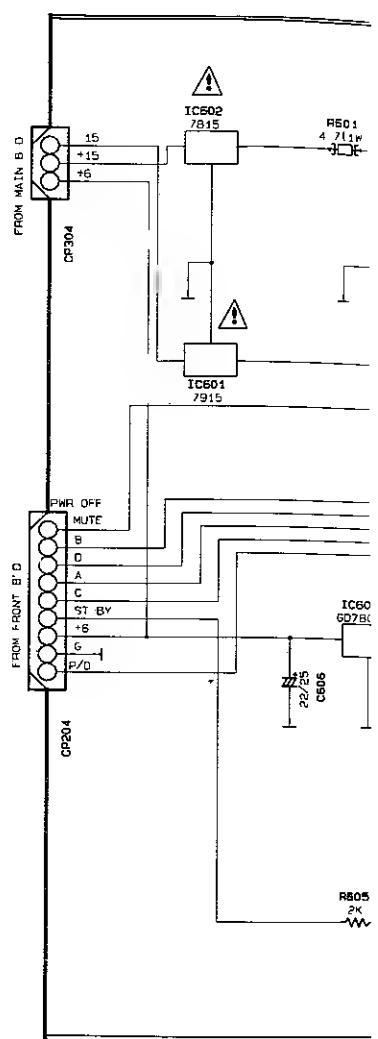




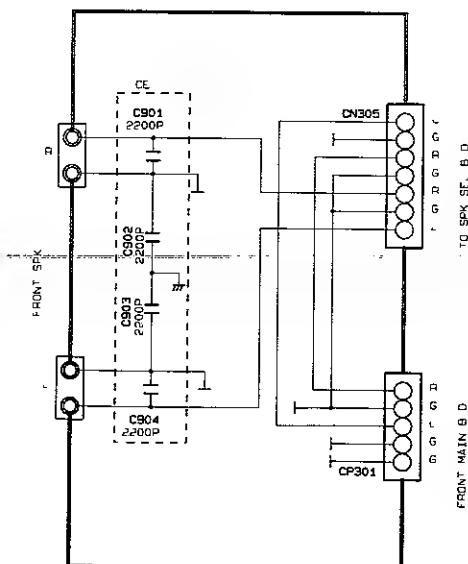
## HEADPHONE BOARD - CIRCUIT DIAGRAM



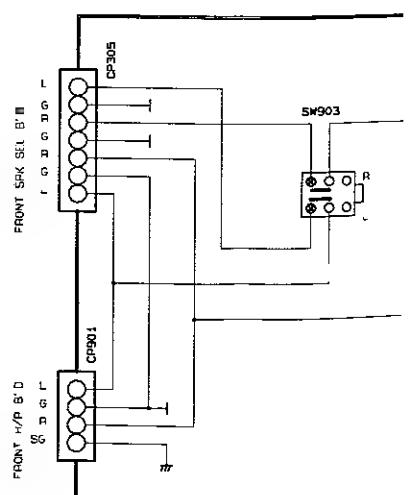
## POWER SUPPLY BO



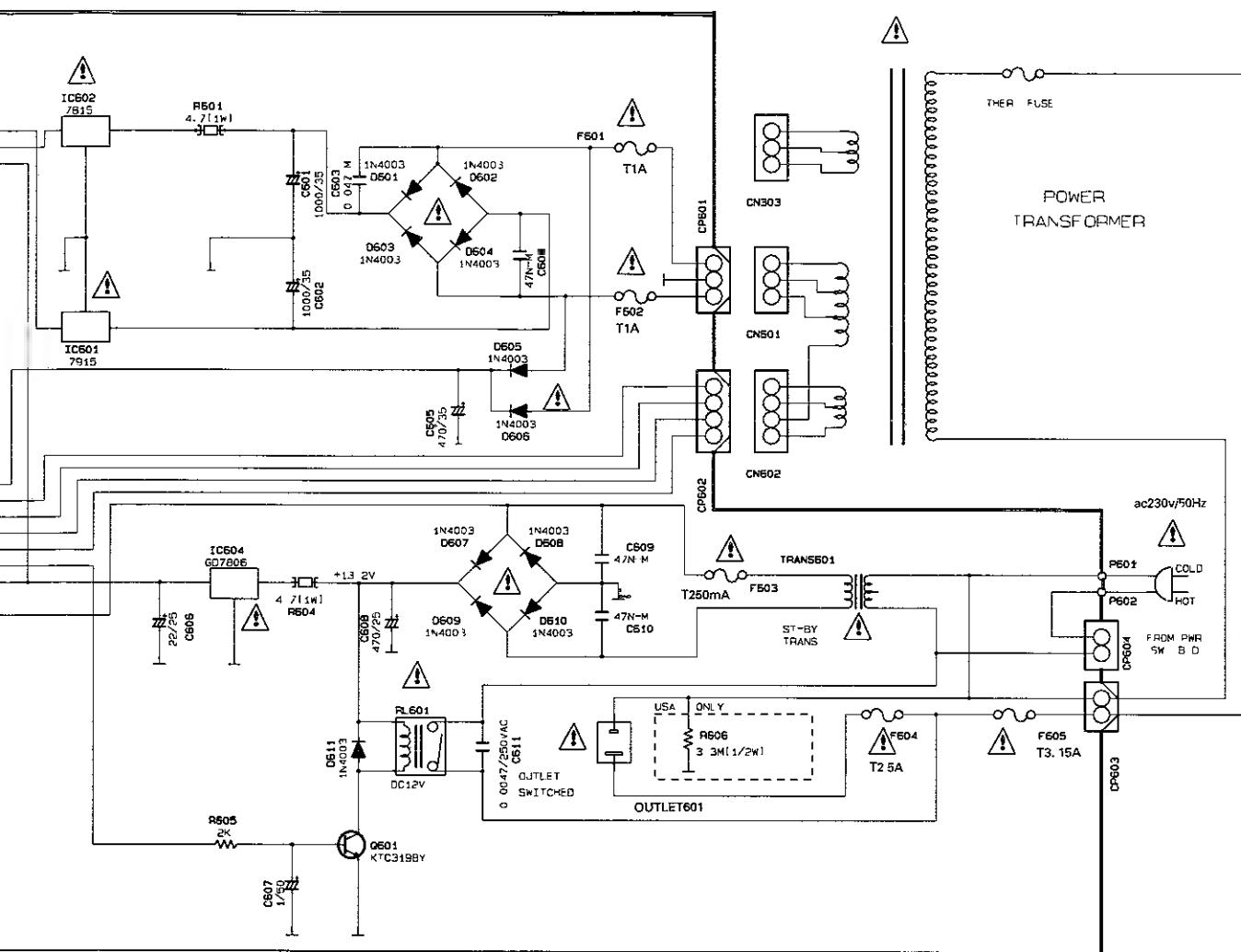
## SPAEKER BOARD - CIRCUIT DIAGRAM (FR732 ONLY)



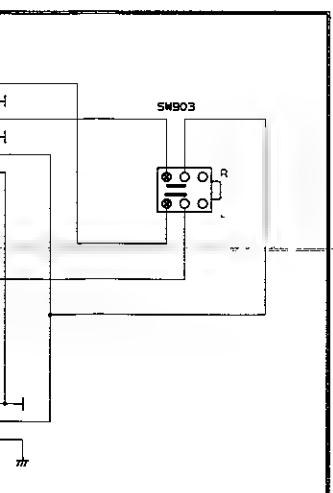
## SPEAKER SELECTOR



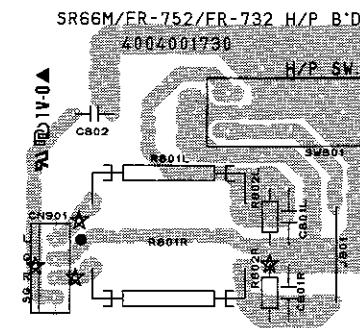
## POWER SUPPLY BOARD - CIRCUIT DIAGRAM



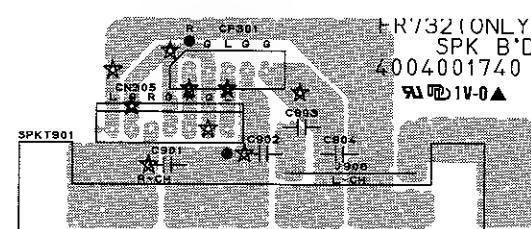
## AKER SELECTOR BOARD - CIRCUIT DIAGRAM (FR732 ONLY)



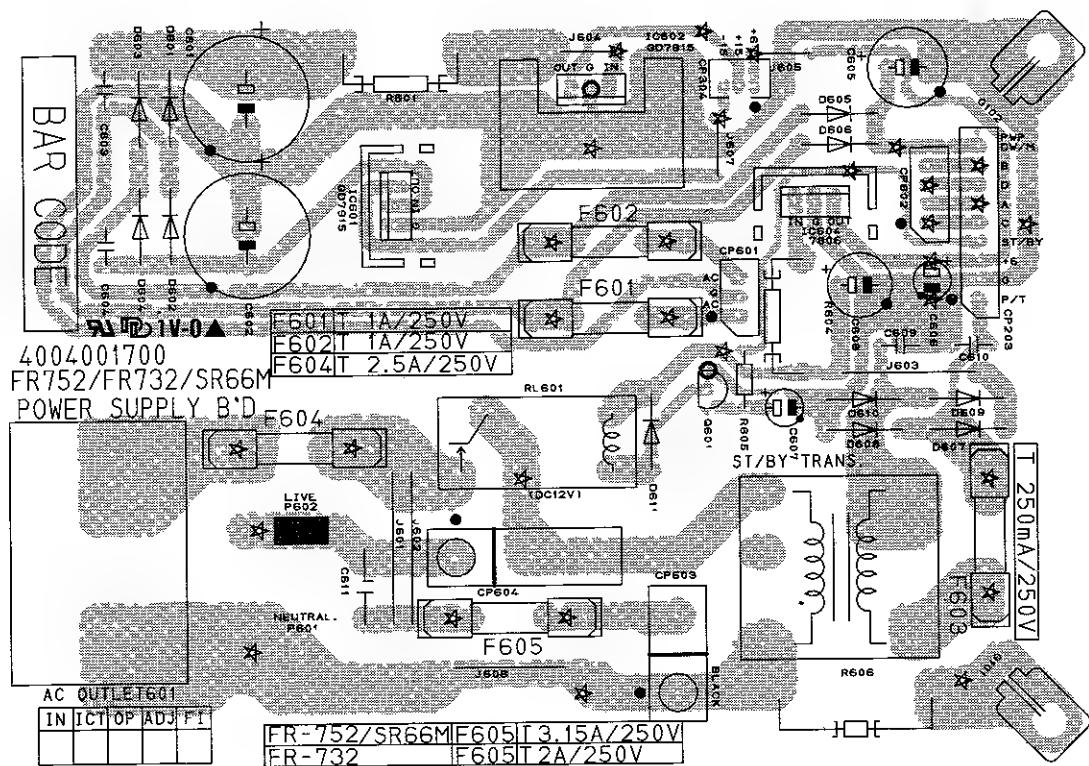
## HEADPHONE BOARD - LAYOUT DIAGRAM



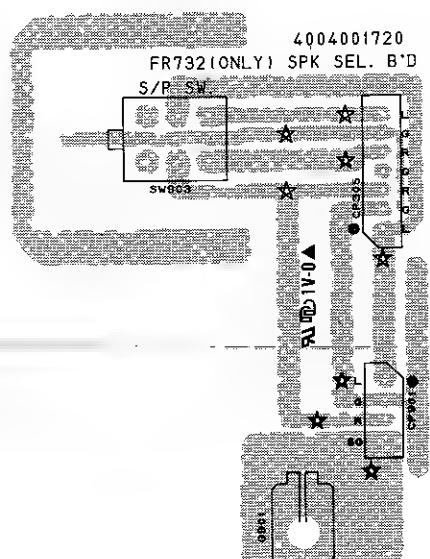
## SPAKER BOARD - LAYOUT DIAGRAM (FR732 ONLY)



## POWER SUPPLY BOARD - LAYOUT DIAGRAM



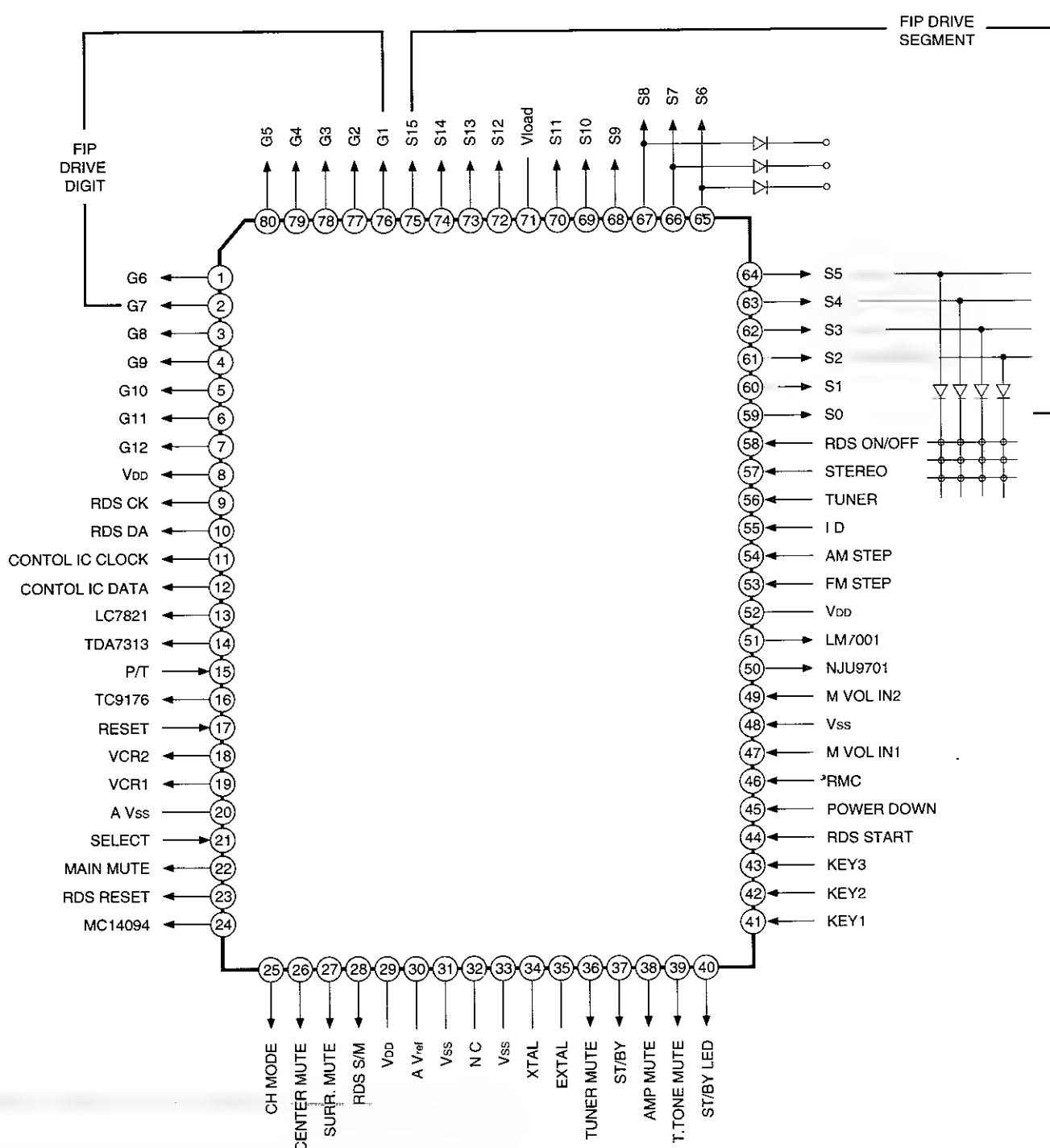
## SPEAKER SELECTOR BOARD - LAYOUT DIAGRAM (FR732 ONLY)



# SERVICE TEST PROGRAM - $\mu$ PD78044AGF

## IC200 : $\mu$ PD 78044AGF (8bit CMOS Microprocessor)

### 1. Pin Configuration



2. Key

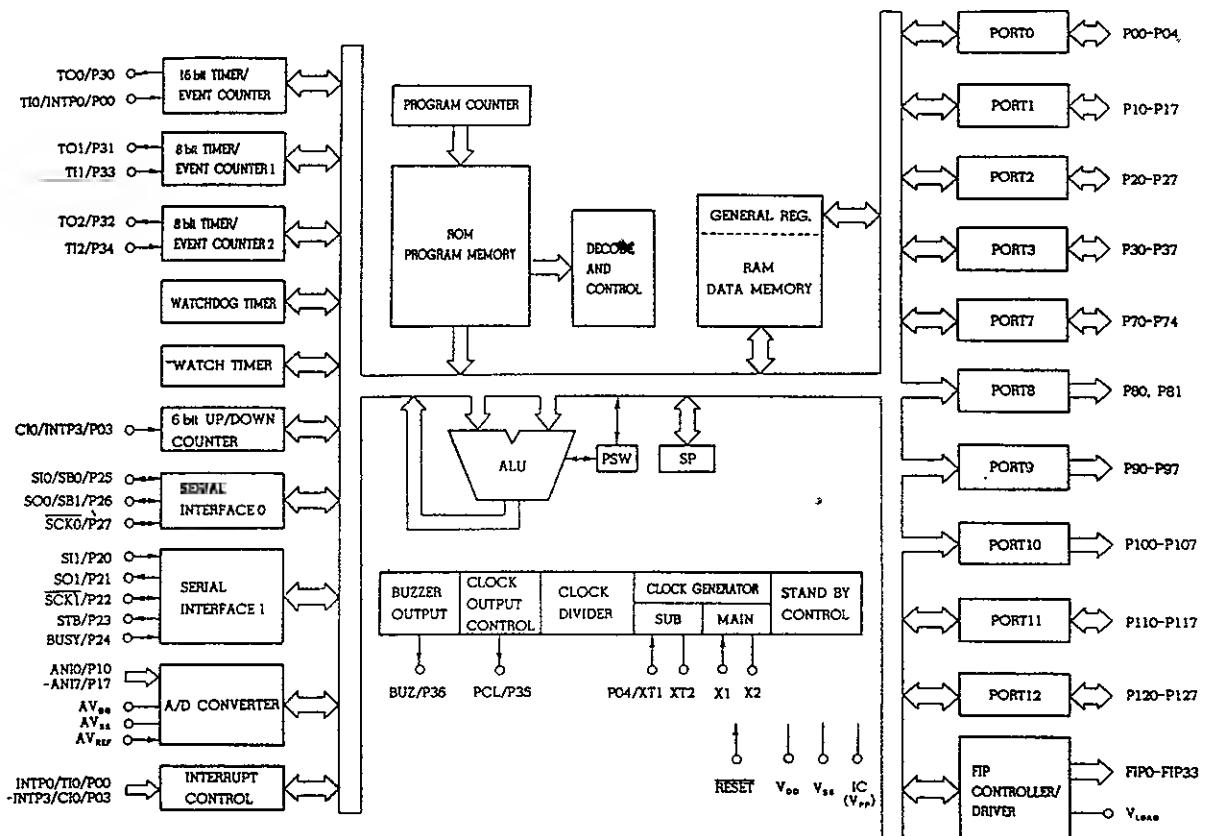
KEY  
PII  
KEY  
PII  
KEY  
PII

3. Bio

## 2. Key Matrix

OUT IN	K. SCAN2 PIN61	K. SCAN3 PIN62	K. SCAN4 PIN63	K. SCAN5 PIN64	K. SCAN6 PIN65	K. SCAN7 PIN66	K. SCAN8 PIN67
KEY IN1 PIN41	TUNING UP	AF	VCR2	TUNING PRESET	VCR1	FM	TAPE
KEY IN2 PIN42		PTY	BALANCE	RDS	DISPLAY	AM	SURR.
KEY IN3 PIN43	KEY IN43 PIN43	TUNING DOWN	TREBLE	MEMORY	CD	AUX	-

## 3. Block Diagram



## SERVICE TEST PROGRAM - $\mu$ PD78044AGF

### 4. Input/Output Terminal Functions

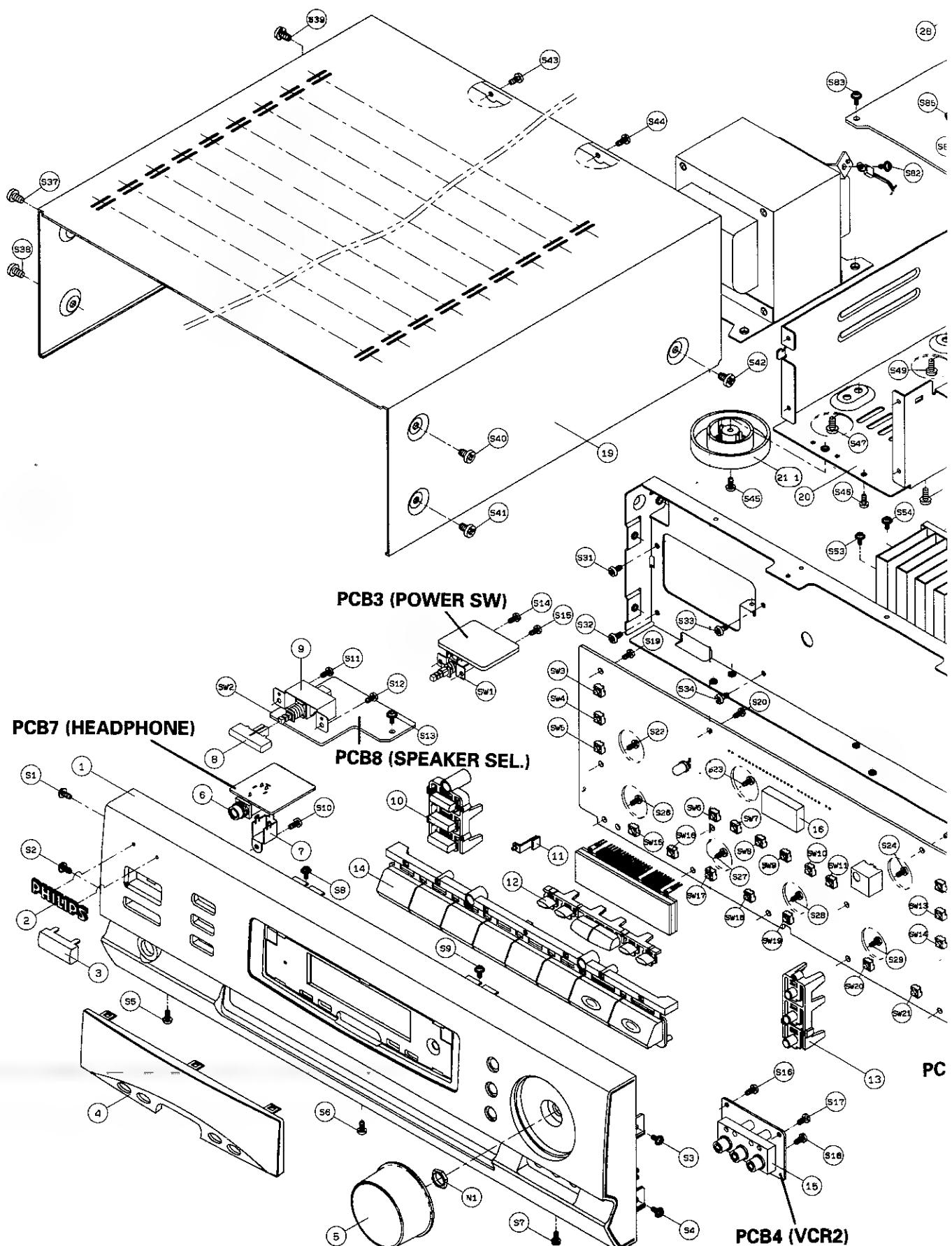
Pin No.	Symbol	Description																
1~7	$G_6 \sim G_{12}$	Grid signal output for FIP.																
8	$V_{DD}$	+5V power supply.																
9/10	RDS CLK/DATA	RDS CLOCK/DATA input for LC7073.																
11/12	CLK/DATA	CLOCK/DATA output for TDA7313, TC9176, NJU9701, LC7821, LM7001 and MC14094.																
13	LC7821	Chip enable output for LC7821.																
14	TDA7313	Chip enable output for TDA7313.																
15	PROTECTION	Signal input for protection. If it is low, all channel mute signal levels are turned to high to protect speakers and this unit. At abnormal condition, after 3 seconds elapses, it does check protection.																
16	TC9176	Chip enable output for TC9176.																
17	RESET	Input for resetting CPU.(At "H", it is active)																
18/19	VCR IN 1 /VCR IN 2	<p>Output to select the video signal VCR1 or VCR2. Output data for each mode is as follows.</p> <table border="1"> <thead> <tr> <th>MODE</th> <th>VCR IN 1</th> <th>VCR IN 2</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>VCR 1</td> <td>H</td> <td>L</td> <td>Initial settings</td> </tr> <tr> <td>VCR 2</td> <td>L</td> <td>H</td> <td></td> </tr> <tr> <td>OTHERS</td> <td><math>\Delta</math></td> <td><math>\Delta</math></td> <td><math>\Delta</math>: Previous state</td> </tr> </tbody> </table> <p>※ Last memory function is available</p>	MODE	VCR IN 1	VCR IN 2	REMARKS	VCR 1	H	L	Initial settings	VCR 2	L	H		OTHERS	$\Delta$	$\Delta$	$\Delta$ : Previous state
MODE	VCR IN 1	VCR IN 2	REMARKS															
VCR 1	H	L	Initial settings															
VCR 2	L	H																
OTHERS	$\Delta$	$\Delta$	$\Delta$ : Previous state															
20	A.Vss	Analog ground																
21	SELECTOR	Input to select FR-732RDS.(At "H", it is active)																
22	MAIN MUTE	<p>Output for main mute. Output is low level under the following conditions.</p> <ol style="list-style-type: none"> <li>1. When power is turned on or off</li> <li>2. When function is changed</li> <li>3. When "-∞ mute signal" is received from the commander.</li> </ol>																
23	RDS RESET	Input to select LC7073.																
24	MC14094 STROBE	Chip enable output for MC14094.																
25	CH. MODE	<p>Output for setting of PRO-LOGIC ,3-STEREO mode. According to each mode, data output is as follows</p> <table border="1"> <thead> <tr> <th>MODE</th> <th>OUTPUT</th> </tr> </thead> <tbody> <tr> <td>3-STEREO</td> <td>High impedance</td> </tr> <tr> <td>PRO-LOGIC</td> <td>H</td> </tr> <tr> <td>OTHERS</td> <td>L</td> </tr> </tbody> </table>	MODE	OUTPUT	3-STEREO	High impedance	PRO-LOGIC	H	OTHERS	L								
MODE	OUTPUT																	
3-STEREO	High impedance																	
PRO-LOGIC	H																	
OTHERS	L																	
26	CENTER MUTE	<p>Output for center mute. Output is low level under the following conditions.</p> <ol style="list-style-type: none"> <li>1. When power is turned on or off.</li> <li>2. When center mode is turned on or off.</li> <li>3. When center mode is switched.</li> <li>4. When test tone mode is switched on, or when output is not directed to center.</li> <li>5. When "-∞ mute signal" is received from the commander.</li> </ol>																

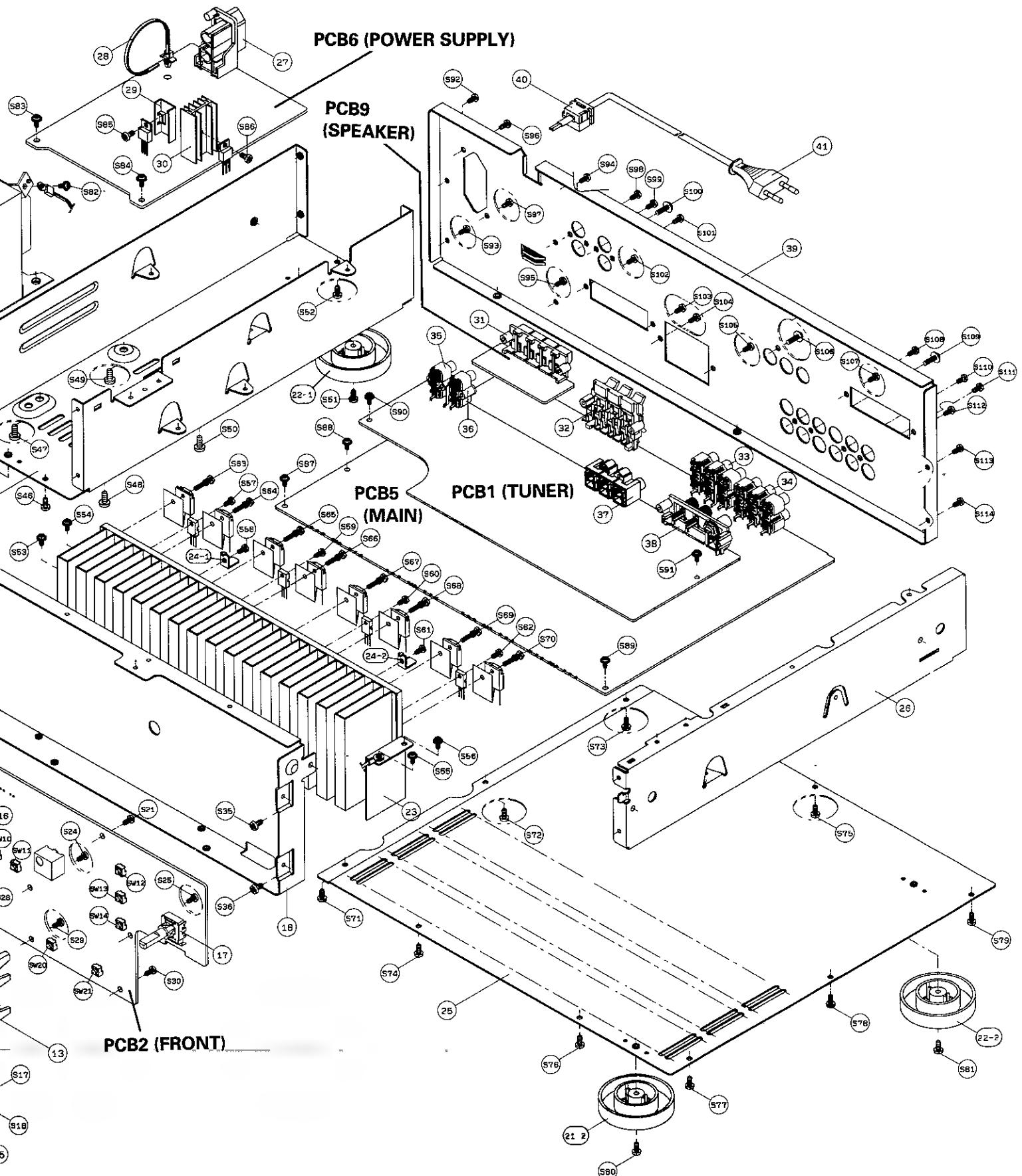
Pin No.	Symbol	Description
27	SURR. MUTE	<p>Output for surround mute.</p> <p>Output is low level under the following conditions.</p> <ol style="list-style-type: none"> <li>1. When power is turned on or off.</li> <li>2. When surround mode is turned on or off.</li> <li>3. When test tone mode is changed, or when output is not directed to surround.</li> <li>4. When delay time is activated.</li> <li>5. When "-∞ mute signal" is received from the commander.</li> </ol>
28	RDS S/M	Input to detect the signal strength of RDS station.
29	V <sub>DD</sub>	+5V power supply.
30	A.Vref	Reference voltage.(Connected to +5V, Not V <sub>DD</sub> )
31	Vss	Ground
32	NC	Not used !
33	Vss	Ground
34/35	XTAL/EXTAL	Input and Output for crystal oscillator.
36	TUNER MUTE	<p>Output for tuner mute.</p> <p>Output is high level under the following conditions.</p> <ol style="list-style-type: none"> <li>1. When power is turned on or off.</li> <li>2. When tuner band is changed.</li> <li>3. When tuning up or down button is pressed.</li> <li>4. When preset button is pressed.</li> <li>5. When displayed preset number is changed during memory scan.</li> <li>6. When "-∞ mute signal" is received from the commander.</li> </ol>
37	ST-BY	<p>When the power is on, control data output is "H".</p> <p>When the power is off, control data output is "L" and last memory function is activated.</p>
38	AMP MUTE	<p>Output for all amplifier mute.</p> <p>Output is high level under the following conditions.</p> <ol style="list-style-type: none"> <li>1. When power is turned on or off</li> <li>2. When the protection terminal's level is high.</li> </ol>
39	T.TONE MUTE	<p>Output for PRO-LOGIC test ton mute.</p> <p>Output is high level under the following conditions.</p> <p>When power is turned on or off.</p>
40	ST-BY LED	Output to light up stand-by LED.(At "H", it is active)
41~43	KEY <sub>1</sub> ~KEY <sub>3</sub>	Input data of K <sub>1</sub> ~K <sub>3</sub> for key scan.
44	RDS START	Input for LC7073 data start.
45	POWER DOWN	Input for power down.(At "L", it is active)
46	RMC	Input for remote control signal.(At "L", it is active)
47/49	M.VOL. IN 1/IN 2	Signal input to decrease or increase volume by volume encoder.
48	Vss	Ground
50	NJU9701	Chip enable output for NJU9701.
51	LM7001	Chip enable output for LM7001.
52	V <sub>DD</sub>	+5V power supply.

Pin No.	Symbol	Description																							
53/54	FM/AM STEP	<p>According to region, input for selecting the frequency band and the steps of FM and AM.</p> <p>Settings are as follows.</p> <table border="1"> <thead> <tr> <th>REGION</th><th>STEP</th><th>BAND</th><th>Pin 53</th><th>Pin 54</th></tr> </thead> <tbody> <tr> <td rowspan="2">USA/CANADA</td><td>100 kHz</td><td>FM</td><td rowspan="2">H</td><td rowspan="2">H</td></tr> <tr> <td>10 kHz</td><td>AM</td><td></td><td></td></tr> <tr> <td rowspan="2">EUROPE</td><td>50 kHz</td><td>FM</td><td rowspan="2">H</td><td rowspan="2">L</td></tr> <tr> <td>9 kHz</td><td>AM</td><td></td><td></td></tr> </tbody> </table>	REGION	STEP	BAND	Pin 53	Pin 54	USA/CANADA	100 kHz	FM	H	H	10 kHz	AM			EUROPE	50 kHz	FM	H	L	9 kHz	AM		
REGION	STEP	BAND	Pin 53	Pin 54																					
USA/CANADA	100 kHz	FM	H	H																					
	10 kHz	AM																							
EUROPE	50 kHz	FM	H	L																					
	9 kHz	AM																							
55	FR-752RDS /FR-732RDS ID	<p>Input for selecting FR752RDS or FR732RDS mode.</p> <p>According to each mode, data input is as follows.</p> <table border="1"> <thead> <tr> <th>MODE</th><th>INPUT</th></tr> </thead> <tbody> <tr> <td>FR752RDS</td><td>L</td></tr> <tr> <td>FR732RDS</td><td>H</td></tr> </tbody> </table>	MODE	INPUT	FR752RDS	L	FR732RDS	H																	
MODE	INPUT																								
FR752RDS	L																								
FR732RDS	H																								
56	TUNED	<p>Input for detecting station during tuning.</p> <p>If "L" is inputted during turning, turning stops at that frequency.</p>																							
57	STEREO	Input for lighting the STEREO indicator.(At "L", it is active)																							
58	RDS ON/OFF	Input for RDS on or off.(RDS on: "L", RDS off: "H")																							
59~70	S <sub>0</sub> ~S <sub>11</sub>	Segment signal output for FIP.																							
71	Vload	-27V power supply for FIP.																							
72~75	S <sub>12</sub> ~S <sub>15</sub>	Segment signal output for FIP.																							
76~80	G <sub>1</sub> ~G <sub>5</sub>	Grid signal output for FIP.																							



## EXPLODED VIEW DIAGRAM

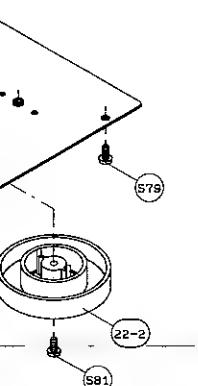
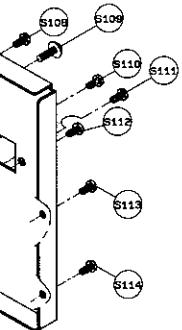




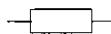
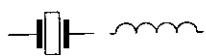
## MECHANICAL PARTSLIST

1	4822 459 04369	Front Panel
2	4822 459 11262	Badge (Philips)
3	4822 410 10799	Power Button
4	4822 450 10212	Window Display
5	4822 413 51525	Knob Main Volume
8	4822 410 63968	Push Button
10	4822 410 63967	Surround Button
11	4822 381 11651	LED Indicator
12	4822 410 10801	Station Button
13	4822 413 41931	Tone Button
14	4822 410 63969	Function Button
17	4822 277 11645	Switch Encoder
21	4822 462 42232	Foot (Silver)
22	4822 462 42233	Foot (Black)
25	4822 462 10816	Cover Button
40	4822 325 80544	Stopper Cord
41	4822 321 10527	AC Power Cord
	4822 218 10599	Remote Commander Assy
	4822 736 14707	Instruction Manual

Note : Only those parts mentioned in the list are normal service parts.

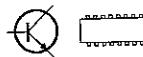
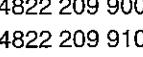
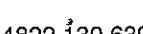
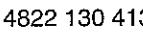
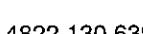


## MAIN BOARD

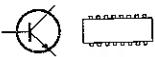
	R357L R357R R358L R358R R451	4822 117 11964 4822 117 11964 4822 117 11964 4822 117 11964 4822 117 11964	Cement Rst 0.27Ω 5W Cement Rst 0.27Ω 5W Cement Rst 0.27Ω 5W Cement Rst 0.27Ω 5W Cement Rst 0.27Ω 5W
	R452 R476 R477	4822 117 11964 4822 117 11964 4822 117 11964	Cement Rst 0.27Ω 5W Cement Rst 0.27Ω 5W Cement Rst 0.27Ω 5W

	L301L L301R L302 L303 X301	4822 157 71892 4822 157 71892 4822 157 71892 4822 157 71892 4822 242 81969	Coil Ind 0.5μH Coil Ind 0.5μH Coil Ind 0.5μH Coil Ind 0.5μH CSA2.00MG-TF01
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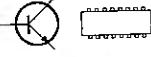
	D301 D302 D303 D304 D305L D305R D306L D306R D307L D307R D308L D308R D309 D310 D311 D312 D313 D314 D315 D316 D317 D318 D319 D320 D321	4822 130 30621 4822 130 70048 4822 130 30621 4822 130 30621 4822 130 70048 4822 130 70048 4822 130 30621 4822 130 30621 4822 130 30621 4822 130 30621 4822 130 30621 4822 130 30621 4822 130 70044 4822 130 30621 4822 130 33765 4822 130 33765 4822 130 33765	Diode 1N4148 Zener UZ9.1BSC Diode 1N4148 Diode 1N4148 Zener UZ27.0BSC Zener UZ27.0BSC Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Zener UZ5.1BSB Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Diode 1N4148 Rectifier PX6A03 Rectifier PX6A03 Rectifier PX6A03
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	D322 D502 D503	4822 130 33765 4822 130 30621 4822 130 30621	Rectifier PX6A03 Diode 1N4148 Diode 1N4148
	IC301 IC302 IC303 IC304 IC305	4822 209 72748 4822 209 91029 4822 209 32995 4822 209 91029 4822 209 14929	IC LC7821 IC KIA4559P IC TDA7313 IC KIA4559P IC NJM2177AFB3
	IC306 IC307 IC308 IC309 Q301	4822 209 90023 4822 209 91029 4822 209 91026 4822 209 91029 4822 130 41947	IC NJU9701D IC KIA4559P IC TC9176 IC KIA4559P Trans KTC3198Y
	Q302 Q303L Q303R Q304L Q304R	4822 130 41947 4822 130 63904 4822 130 63904 4822 130 63904 4822 130 63904	Trans KTC3198Y Trans KTD1302 Trans KTD1302 Trans KTD1302 Trans KTD1302
	Q306 Q307 Q308 Q309 Q310	4822 130 63907 4822 130 63904 4822 130 63904 4822 130 63907 4822 130 63907	Trans DTA114YS Trans KTD1302 Trans KTD1302 Trans DTA114YS Trans DTA114YS
	Q311 Q312 Q313L Q313R Q314L	4822 130 63906 4822 130 63906 4822 130 41312 4822 130 41312 4822 130 41312	Trans DTC114YS Trans DTC114YS Trans KTC3200 Trans KTC3200 Trans KTC3200
	Q314R Q315L Q315R Q316L Q316R	4822 130 41312 4822 130 42394 4822 130 42394 4822 130 42394 4822 130 42394	Trans KTC3200 Trans KTC3198Y Trans KTC3198Y Trans KTC3198Y Trans KTC3198Y
	Q317L Q317R Q318L Q318R Q319L	4822 130 63903 4822 130 63903 4822 130 63905 4822 130 63905 4822 130 63899	Trans KTA1024 Trans KTA1024 Trans KTC3206 Trans KTC3206 Trans 2SC4137

## MAIN BOARD



Q319R	4822 130 63899	Trans 2SC4137
Q320L	4822 130 63898	Trans KSC2690A-Y
Q320R	4822 130 63898	Trans KSC2690A-Y
Q321L	4822 130 63897	Trans KSA1220A-Y
Q321R	4822 130 63897	Trans KSA1220A-Y
Q322L	4822 130 63895	Trans 2SC3854
Q322R	4822 130 63895	Trans 2SC3854
Q323L	4822 130 63894	Trans 2SA1490
Q323R	4822 130 63894	Trans 2SA1490
Q324L	4822 130 41947	Trans KTC3198Y
Q324R	4822 130 41947	Trans KTC3198Y
Q325	4822 130 41312	Trans KTC3200
Q326	4822 130 41312	Trans KTC3200
Q327	4822 130 42394	Trans KTC3198Y
Q328	4822 130 42394	Trans KTC3198Y
Q329	4822 130 63903	Trans KTA1024
Q330	4822 130 63905	Trans KTC3206
Q331	4822 130 63899	Trans 2SC4137
Q332	4822 130 63898	Trans KSC2690A-Y
Q333	4822 130 63897	Trans KSA1220A-Y
Q334	4822 130 63895	Trans 2SC3854
Q335	4822 130 63894	Trans 2SA1490
Q336	4822 130 41947	Trans KTC3198Y
Q337	4822 130 41312	Trans KTC3200
Q338	4822 130 41312	Trans KTC3200
Q339	4822 130 42394	Trans KTC3198Y
Q340	4822 130 42394	Trans KTC3198Y
Q341	4822 130 63903	Trans KTA1024
Q342	4822 130 63905	Trans KTC3206
Q343	4822 130 63899	Trans 2SC4137
Q344	4822 130 63898	Trans KSC2690A-Y
Q345	4822 130 63897	Trans KSA1220A-Y
Q346	4822 130 63895	Trans 2SC3854
Q347	4822 130 63894	Trans 2SA1490
Q348	4822 130 41947	Trans KTC3198Y
Q349	4822 130 41726	Trans KTA1015
Q350	4822 130 41947	Trans KTC3198Y
Q351	4822 130 41947	Trans KTC3198Y
Q504	4822 130 63907	Trans DTA114YS
Q505	4822 130 63906	Trans DTC114YS



Q505L	4822 130 63904	Trans KTD1302
Q505R	4822 130 63904	Trans KTD1302

### - MISCELLANEOUS -

JACK2	4822 265 10765	Terminal Speaker 6P
JACK5	4822 267 41251	Jack RCA 6P
JACK6	4822 267 41252	Jack RCA 6P

Note : Only those parts mentioned in the list are normal service parts.

## TUNER BOARD

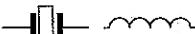
FR



VR101	4822 117 12559	Semi-fixed Res 10K
VR102	4822 117 12561	Semi-fixed Res 100K
VR103	4822 117 12562	Semi-fixed Res 500K
VR104	4822 117 12563	Semi-fixed Res 2K
VR105	4822 117 12564	Semi-fixed Res 50K



TC101	4822 125 60228	Trimmer 20pF
TC102	4822 125 60227	Trimmer 10pF



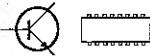
CF101	4822 242 82235	SFE10.7MS3GH-ATF21
CF102	4822 242 82235	SFE10.7MS3GH-ATF21
CF103	4822 157 11047	Filter CFM2-450BL
CF104	4822 242 82242	Filter BFU450C4N
FE101	4822 210 10676	FM Tuner FE407-G60
L101	4822 157 71881	AM-Ant Coil
L102	4822 157 71888	AM-Osc Coil
L103	4822 157 11048	FM-Det-A Coil
L104	4822 157 71895	FM-Det-B Coil
L105	4822 157 71893	Inductor 20.8mH
L106	4822 157 71896	AM IFT Coil
L107L	4822 157 11049	Filter MPX
L107R	4822 157 11049	Filter MPX
X101	4822 242 82238	Crystal 7.2MHz
X102	4822 242 10608	Crystal 4.332MHz
X103	4822 242 10607	Resonator 4.00MGW



D101	4822 130 30621	Diode 1N4148
D102	4822 130 30621	Diode 1N4148
D103	4822 130 30621	Diode 1N4148
D104	4822 130 30621	Diode 1N4148
D106	4822 130 70044	Zener UZ5.1BSB
D107	4822 130 70044	Zener UZ5.1BSB
D108	4822 130 30621	Diode 1N4148
D109	4822 130 30621	Diode 1N4148
D110	4822 130 70044	Zener UZ5.1BSB
D111	4822 130 30621	Diode 1N4148



D112	4822 130 30621	Diode 1N4148
VD101	4822 130 81197	VC Diode KV1236Z
VD102	4822 130 81197	VC Diode KV1236Z



IC101	4822 209 91027	IC LA1266G
IC102	4822 209 91051	IC HA12016
IC103	4822 209 30152	IC LM7001
IC104	4822 209 91025	IC GD4066B
IC105	4822 209 73726	IC LA1235

IC106	4822 209 15022	IC LC7073
IC107	4822 209 33842	IC TDA7330B

Q101	4822 130 63896	Trans KTC3194Y
Q102	4822 130 41312	Trans KTC3200
Q103	4822 130 63908	FET 2SK168DTZ
Q104	4822 130 63907	Trans DTA114YS
Q105	4822 130 63907	Trans DTA114YS
Q106	4822 130 63907	Trans DTA114YS
Q107	4822 130 41947	Trans KTC3198Y
Q108	4822 130 63907	Trans DTA114YS

Q109L	4822 130 63904	Trans KTD1302
Q109R	4822 130 63904	Trans KTD1302
Q110	4822 130 41726	Trans KTA1266Y
Q111	4822 130 41947	Trans KTC3198Y
Q112	4822 130 41726	Trans KTA1266Y

Q113	4822 130 43546	FET 2SK117Y
Q114	4822 130 41947	Trans KTC3198Y

### - MISCELLANEOUS -

J101	4822 265 10766	Jack RCA 2P
J102	4822 267 41253	Jack RCA 3P
J103	4822 267 31993	Jack Remote 2P
ANT101	4822 290 81738	Terminal Antenna

IC20

IC20

Q20

Note : Only those parts mentioned in the list are normal service parts.

## FRONT BOARD

	C204	4822 124 80923	Electrolytic Cap 0.047F
	X200	4822 242 73769	CST4.19MGW-TF01
	D200	4822 130 30621	Diode 1N4148
	D201	4822 130 30621	Diode 1N4148
	D202	4822 130 30621	Diode 1N4148
	D203	4822 130 30621	Diode 1N4148
	D204	4822 130 30621	Diode 1N4148
	D205	4822 130 30621	Diode 1N4148
	D207	4822 130 70048	Zener UZ27.0BSC
	D208	4822 130 83742	Zener UZ6.2BSB
	D209	4822 130 31878	Diode 1N4003
	D210	4822 130 30621	LED SLR-54URCF03
	D211	4822 130 30621	Diode 1N4148
	D212	4822 130 30621	Diode 1N4148
	D213	4822 130 30621	Diode 1N4148
	D214	4822 130 30621	Diode 1N4148
	D215	4822 130 70045	Zener UZ5.6BSB
	D216	4822 130 70043	Zener UZ4.3BSB
	D217	4822 130 30621	Diode 1N4148
	D218	4822 130 30621	Diode 1N4148
	D219	4822 130 70051	LED SLR-54URCF03
	D220	4822 130 30621	Diode 1N4148
	IC200	4822 209 15014	UPD78044AGF-210-3B9
	IC201	4822 209 15015	IC MC14094
	Q200	4822 130 41947	Trans KTC3198Y
	Q201	4822 130 63906	Trans DTC114YS
	Q202	4822 130 63906	Trans DTC114YS
	Q203	4822 130 63906	Trans DTC114YS
	Q204	4822 130 63906	Trans DTC114YS
	Q205	4822 130 63906	Trans DTC114YS
	Q206	4822 130 63906	Trans DTC114YS
	Q207	4822 130 63906	Trans DTC114YS

	Q208	4822 130 63907	Trans DTA114YS
	Q209	4822 130 63907	Trans DTA114YS
	Q210	4822 130 63907	Trans DTA114YS
	Q211	4822 130 63906	Trans DTC114YS
	Q212	4822 130 63907	Trans DTA114YS
	Q213	4822 130 63906	Trans DTC114YS
	Q214	4822 130 63906	Trans DTC114YS
<b>- MISCELLANEOUS -</b>			
	FL201	4822 135 00076	FL Display CM1361C
	RMC201	4822 130 91529	Remote Sen KRN-34LI
	SW3	4822 276 13661	Tact Switch
	SW4	4822 276 13661	Tact Switch
	SW5	4822 276 13661	Tact Switch
	SW6	4822 276 13661	Tact Switch
	SW7	4822 276 13661	Tact Switch
	SW8	4822 276 13661	Tact Switch
	SW9	4822 276 13661	Tact Switch
	SW10	4822 276 13661	Tact Switch
	SW11	4822 276 13661	Tact Switch
	SW12	4822 276 13661	Tact Switch
	SW13	4822 276 13661	Tact Switch
	SW14	4822 276 13661	Tact Switch
	SW15	4822 276 13661	Tact Switch
	SW16	4822 276 13661	Tact Switch
	SW17	4822 276 13661	Tact Switch
	SW18	4822 276 13661	Tact Switch
	SW19	4822 276 13661	Tact Switch
	SW20	4822 276 13661	Tact Switch
	SW21	4822 276 13661	Tact Switch
	SY200	4822 277 11645	Switch Encoder

Note : Only those parts mentioned in the list are normal service parts.

## POWER BOARD

		
D601	4822 130 31878	Diode 1N4003
D602	4822 130 31878	Diode 1N4003
D603	4822 130 31878	Diode 1N4003
D604	4822 130 31878	Diode 1N4003
D605	4822 130 31878	Diode 1N4003
D606	4822 130 31878	Diode 1N4003
D607	4822 130 31878	Diode 1N4003
D608	4822 130 31878	Diode 1N4003
D609	4822 130 31878	Diode 1N4003
D610	4822 130 31878	Diode 1N4003
D611	4822 130 31878	Diode 1N4003
		
IC601	4822 209 91032	IC KA7915
IC602	4822 209 91033	IC KA7815
IC604	4822 209 91031	IC KA7806
Q601	4822 130 41947	Trans KTC3198Y
<b>- MISCELLANEOUS -</b>		
F601	 4822 253 50165	Fuse 5T 1A 250V
F602	 4822 253 50165	Fuse 5T 1A 250V
F603	 4822 253 50164	Fuse 5T 250MA 250V
F604	 4822 253 50167	Fuse 5T 2.5A 250V
F605	 4822 253 50166	Fuse 5T 2A 250V
J701	4822 265 31321	Jack RCA 3P
OUT601	4822 267 31994	AC Outlet 1P
RL601	 4822 280 80794	Relay SDT-SS-112DM
SPKT901	4822 290 81736	Terminal Speaker 4P
SW1	4822 276 13807	Power Switch
SW2	4822 276 13658	Push Switch 2P2T
SW801	4822 267 31992	Jack Phone
	 4822 146 31505	Standby Transf 230V
	 4822 146 10662	Power Transf 230V

Note : Only those parts mentioned in the list are normal service parts.